

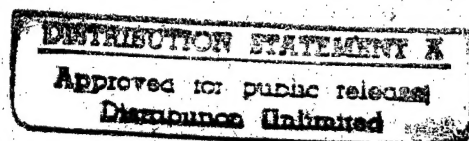
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JPRS-EEI-84-007

16 January 1984

# East Europe Report

ECONOMIC AND INDUSTRIAL AFFAIRS



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16 January 1984

## EAST EUROPE REPORT

### ECONOMIC AND INDUSTRIAL AFFAIRS

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BULGARIA

DEVELOPMENT OF NATIONAL ECONOMY DURING 9-MONTH PERIOD OF 1983

Sofia STATISTICHESKI IZVESTIYA in Bulgarian No 3, 1983 pp III - X

[Introductory portion of the publication, including General Remarks, Table of Contents, and a summary of economic development during the first 9 months of 1983]

[Excerpts] General Remarks

The present publication appears once every 3 months and contains annual, quarterly, and monthly statistical data on basic indices which characterize the socioeconomic development of the Bulgarian People's Republic.

The program of statistical information includes 11 divisions:

Basic data for national economic growth

Living standard of the population

Labor

Capital investments

Industry

Agriculture

Transportation

Communications

Domestic trade and prices

Tourism

Foreign trade

The data for all the branches are arranged by organizational structure and composition of the enterprises for the corresponding period. The national



economic branches and the industrial branches are examined according to the classification for the national economy endorsed by Decree No 309 of 19 April 1979. The indices for cost are published according to prices for the corresponding year. The annual indices for industrial and agricultural production, for capital investments, for turnover and prices, for foreign trade commodity exchange and monthly indices are calculated using 1970 as the base period, and those for a period shorter than 1 year--on the basis of the corresponding period in the preceding year. The data for communal services for the population are given according to retail prices on 1 January 1982.

The data for incomes and expenditures of households are ascertained according to representative observation of household budgets.

The data for 1983 are pre preliminary and will be refined in following issues:

#### Explanation of Abbreviations and Symbols

- 0--less than half of the corresponding unit of measure used
- ---no instance
- . ---data lacking

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#### National Economic Growth During the First 9 Months of 1983

During the first 9 months of the current year, the workers' collectives of the enterprises and economic organizations attained good results in the fulfillment of state plan tasks, carrying out nationwide intensification and increasing the quality and effectiveness of production.

In comparison with the first 9 months of 1982, in the branches of the national economy (excluding agriculture), net production grew by about 6.5 percent, the social productivity of labor by 5.5 percent, total profit by 9 percent. The growth in the social productivity of labor contributed 84 percent of the increase in net production. Overall production of the state and cooperative industrial enterprises grew by 5.2 percent, overall production of livestock breeding in agricultural organizations by more than 4 percent, construction-repair projects completed by construction organizations by 5.7 percent, goods carried by transport for general use by 6.5 percent, retail turnover by 4.3 percent. A reduction in material expenditures was achieved.

#### Industry

Compared to the first 9 months of 1982, the highest growth in general industrial production was achieved by the state enterprises for electro-technical and electronic industry--16.1 percent, machine building and metal processing industry--8.2 percent, and chemical and rubber industry--7.7 percent. The following okrugs achieved above average growth for the country: Shumen--10.2 percent, Stara Zagora--9.6 percent, Sofia--9.4 percent, Plovdiv--8.6 percent, Razgrad--8.0 percent, Kurdzhali--7.5 percent, Ruse--7.1 percent, Silistra--6.3 percent, Smolyan--5.9 percent. Production of a number of basic industrial products increased, and the predicted quantity of means important for production for the national economy, consumer items, and goods for export were secured. In comparison with the first 9 months of 1982, the following were produced in greater quantity: electric energy, by 4 percent; steel, by 8.5 percent; trucks, by 10.6 percent; electric motors, by 4.8 percent; electric trucks, by 3.5 percent; motor trucks, by 22.8 percent; electric hoists, by 4.8 percent; televisions, by 13.6 percent;

nitrogen fertilizers, by 4.9 percent; cotton fabrics, by 0.8 percent; woolen fabrics, by 1.5 percent; silk fabrics, by 5.3 percent; tailored items, by 5.1 percent; meat, by 9.2 percent; canned vegetables (sterilized), by 16.3 percent; canned fruit, by 26.3 percent; cheese, by 5.8 percent; vegetable food oils, by 18.3 percent.

The productivity of labor per capita of industrial production personnel in state industrial enterprises grew by 4.2 percent in comparison with the corresponding period of 1982. The greatest increases were in the enterprises in the electrotechnical and electronic industry--12.6 percent, the chemical and rubber industry--6.3 percent, and the machine building and metal processing industry--5.7 percent.

#### Capital Investments

During the first 9 months, 4,375,000,000 leva in capital investments were invested, compared to the first 9 months of 1982, a growth of 4.9 percent was achieved. The biggest portion of capital investments, 75 percent, was directed to the branches of material production. Of the total amount of capital investments, 35 percent were used for modernization and reconstruction. By the end of September, fixed assets worth 2,627,000,000 leva were put into operation.

As a result of the good care of livestock, their productivity was increased. The average milk yield from a cow fed with fodder increased by 7.2 percent, and the average egg yield from chickens by 2.6 percent. More milk was produced--5.4 percent more, and eggs--10.9 percent more. Good results were achieved in the procurement of agricultural products. In comparison with the first 9 months of 1982, more of the following products were purchased: meat (excluding poultry)--5.6 percent, milk--6.4 percent, eggs--9.9 percent.

#### Transportation and Communications

Economic organizations for general use transport carried 6.5 percent more goods in comparison with the first 9 months of 1982. In the area of railway freight, the turnaround time for a freight car has been decreased by 7.9 hours, and the average daily productivity has been increased by 3.6 percent. The trip time of ferry boat vessels has been decreased by 5.7 hours. The technical preparedness of trucks was increased by 0.6 percent, and the coefficient for use of the operating fleet by 2.2 percent. The average technical speed of trucks was increased by 1.2 percent. The average daily run of buses increased by 1.6 percent and of truck trailers by 2.8 percent.

A total of 1.9 percent more passengers traveled than in the first 9 months of 1982. The transport services of the population are now better. A total of 60,000 new passenger seats were put into service. An additional 606 passenger train and 639,000 bus trips were made available, and the number of cars in the trains increased by 7,900. The frequency of trips on existing autoroutes was increased by 271.

Income from communication services was 10.8 percent higher than in the first 9 months of 1982. The postal network was enlarged by the addition of 19

new post, telegraph, and telephone offices, 14 of which are in villages. A total of 99,800 new telephone hookups were made, 80,900 of which were for domestic use. A total of 172 new telex machines were put in service. Three radio broadcasting towers, 7 radio transmitting stations, and 36 television relay transmitters were put into use.

#### Living Standard and Domestic Trade

Positive results were achieved in economic development, and higher social labor productivity permitted the further successful realization of measures for raising the people's living standard. The population's income increased: during the first 9 months, the average monthly wage of workers and employees of economic organizations (excluding agricultural workers) reached 202 leva and grew by 2.5 percent in comparison with the same period last year. In comparison with the third quarter of 1982, the average monthly wage of workers and employees of state and cooperative industrial enterprises grew from 198 to 205 leva, in construction--from 227 to 230 leva, in railway transport--from 237 to 240 leva, in motor transport--from 214 to 219 leva, in seaborne transport--from 229 to 245 leva, in civil air transport--from 274 to 289 leva.

The activity of enterprises for communal services for the population was enlarged. In comparison with the first 9 months of 1982, services per capita of the population for maintenance and repair of motor vehicles grew by 19.1 percent, for maintenance and repair of elevators--by 13.5 percent, for maintenance and repair of radio and television sets--by 13.2 percent, for maintenance and repair of small appliances--by 11.4 percent, for laundering--by 8.0 percent, furniture and woodworking services--by 5.8 percent, dry cleaning--by 5.6 percent. Transportation and communication services for the population are now better. Passenger seats in buses, trolleybuses, and streetcars were increased by 5.4 percent for every 10,000 people, and telephones installed for private use by 13.2 percent for every 1,000 people.

The network of stores and public nutrition establishments continued to be expanded and modernized. The commodity turnover realized during the first 9 months exceeded 10,200,000 leva, and this is 4.3 percent more than during the corresponding period of 1982. Retail commodity turnover in the commercial network grew by 4.2 percent, and in public nutrition, by 4.7 percent.

More and more varied consumer goods were available on the domestic market. There was an increase in a number of food and non-food goods sold: rice, by 4.0 percent; meat products, by 3.3 percent; vegetable food oils, by 4.7 percent; sugar, by 8.3 percent; milk, by 1.5 percent; butter, by 2.9 percent; eggs, by 2.5 percent; fresh vegetables, by 3.4 percent; fresh fruit, by 14.3 percent; tailored items, by 1.7 percent; knitwear, by 6.1 percent; shoes, by 4.5 percent; furniture, by 2.3 percent; domestic refrigerators, by 3.0 percent; sewing machines, by 13.6 percent.

#### Foreign Trade

Foreign trade commodity exchange exceeded 17,000,000,000 leva in foreign currency and is 10.5 percent higher than in the first 9 months of 1982.

Foreign economic relations with socialist countries, primarily with the USSR, have been expanded. Commodity exchange with CEMA member countries grew by 16.5 percent. This accounts for 75.6 percent of the total amount exported and 80.7 percent of the total amount imported. In comparison with the first 9 months of 1982, more machines and equipment designed for production, chemical products, fertilizers and rubber, building materials and parts, food supplies, and others, were exported. The exported machines and equipment designed for production accounted for 48.6 percent of the total amount exported. More of the following goods were imported during the first 9 months: raw mineral materials and metals, fuel, raw materials and their processed products (excluding foodstuffs), industrial goods, goods for public consumption (non-food merchandise).

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CZECHOSLOVAKIA

SSR MINISTER INTERVIEWED ON ACCELERATION OF R&D PROCESS

Bratislava PRAVDA in Slovak 23 Nov 83 p 4

/Interview with Eng Pavol Hrivnak, SSR minister of industry, by Eng Arnost Bak, deputy editor in chief of PRAVDA and Eng Peter Sitanyi, head of the economic policy department: "Having a Clear Idea of Sector's Development for Specifying the Roles of Science and Technology--Acceleration of R&D Discussed with SSR Minister of Industry"; date and place not given

/Text In June of the current year we published an interview with the SSR minister of industry regarding some qualitative developmental aspects of the Slovak chemical, woodworking and light industry. At that time we promised our readers that we would return to some of the problems, particularly to those regarding acceleration of R&D progress in the sector. Consequently, today we bring you a continuation of our June interview. On behalf of the editors of PRAVDA, the SSR minister of industry, Pavol Hrivnak, was interviewed by the deputy chief editor, Eng Arnost Bak, and by head of the economic policy department, Eng Peter Sitanyi.

/Question Comrade Minister, the Eighth Plenum of the CPCZ Central Committee as well as the CPSL Central Committee plenum dealing with acceleration of R&D development also stipulated many tasks for the industrial sector. However, their implementation calls for carrying out detailed analyses, weighing the sector's potential and what steps to take to promoting R&D development and its more expedient application in practice.

/Answer I agree, that must be the starting point. At the ministry we decided on a certain amount of reorganization, whereby the individual ministerial departments are specifically assigned not only their duties and obligations, but most of them are also granted executive power commensurate to their obligations and responsibilities, require from others closer cooperation and the like. We also demand that our general directorates implement the same division of labor, responsibility and jurisdiction. What we are striving for is to expand and deepen responsibility among managerial personnel.



/Question/ Then it could be said that you want to straighten out your own ranks?

/Answer/ That is one way of putting it. And even though this effort of ours does not appear to be anything out of the ordinary, we are convinced that it will contribute to achieving better results in making use of R&D. For example, if some activities are duplicative, they must be reduced, on the other hand, the personnel of some branches, including general directorates and enterprises, keep thinking that R&D is a matter of concern to just a single branch, or a certain group of personnel. Such an approach must be overcome as soon as possible. I point out that organizations under the direct control of the ministry will be made equally and specifically responsible for meeting this specific task.

/Question/ Nevertheless, stipulation of tasks and goals for R&D calls for having a clear long-term concept of the development of individual sectors.

/Answer/ Without a doubt. That is the basic prerequisite and that is how we are trying to proceed. It is unthinkable to first assign tasks for R&D and then keep adjusting to them the development of a sector. Since we have not been doing this very systematically up to now, we are swamped with so many and such serious problems that their solution is for all practical purposes impossible without changes of a structural character. And in order for these changes to succeed and be compatible with our management of them, in the system of the developing socialist international economic integration, they stress in full measure the interests of CEMA countries' socialist community.

/Question/ Such an approach will obviously show what the department is able to handle and what not.

/Answer/ Surely, on the basis of such a comprehensive approach and assessment it shall be decided in which areas we shall make use of, e.g., our own R&D base which now includes 13 independent institutes and 60 research centers in the enterprise sphere, where we shall procure licenses, where we shall cooperate with our colleagues from the CSR, the Soviet Union and other CEMA member countries.

/Question/ You mentioned your own R&D. However, in the sector there are several branches, meaning primarily light industry, where an integrated R&D base has not been established or completed, yet even they are asked to qualitatively improve and accelerate the cycle of science-research-production-utilization.

/Answer/ That is precisely why we want more cooperation with our colleagues from the CSR where they are ahead of us in science and research specifically in these branches. We will be establishing implementation teams. Their members will go to the CSR to familiarize themselves with new findings and their practical applications, with the

proviso that they will not be subjecting what they learned to scientific or research testing or verification, but promote application of the worked out findings in Slovak industry.

/Question/ And what about the problem of license arrangements? Use of this possibility in our economy, as was stated at the Eighth Plenum of the CPCZ Central Committee and the subsequent session of the CPSL Central Committee, is still not adequately used.

/Answer/ Regrettably, our research institutes are often against procurement of licenses. In my opinion that is not right. After all, a license sometimes offers much more advantage--particularly from the viewpoint of time--than thinking up sometimes new or reinventing things. It is true that procurement of a license must be well thought out, it calls for familiarization with the given problems, assessing who made the biggest advances in solving them, what benefit it will bring to our economy. It appears to me that in the interest of unification, procurement of every license should be dealt with today from the viewpoint of the needs of not just one, but of several CEMA member countries.

/Question/ So, to a considerable extent it involves gaining time as well as advantages on a wider scale for countries of the socialist community.

/Answer/ You are right, efforts toward cutting down on time in finding solutions under our conditions quite often bring along some unhealthy practices. For example, one task or another is often being dealt with as part of another task, and only after it is halfway finished is it put into the plan, its finishing continues and its solvers then allege that they cut down the time of its solution by so and so much. But why should we delude ourselves? Planning, preparation, assessment and solution of this or that research task must be judged critically, openly. What is needed is that our research institutes carry out detailed analyses of their efforts, that they know what they want to deal with and solve, that they soberly evaluate their capabilities and their potential, that they be not afraid, let alone be ashamed, to propose procurement of individual licenses.

/Question/ In an effort to apply R&D findings in practice as expediently as possible, there are springing up new forms of collaboration among research institutes, enterprises and, eventually, additional organizations--scientific production associations. Your sector is no exception...

/Answer/ It appears to me that in our everyday efforts we have simplified the significance of these associations in many respects. Personally, I am for scientific production associations, but I am also for having represented in them a greater variety of professions which, particularly, should go beyond the scope of a single VHI /economic production unit/. In my opinion, it is only then that a temporary scientific production association finds its justification.

/Question/ You say that an association should not be confined to but a single VHJ. However, within your sector there is one which is confined to a single VHJ. To be specific, this involves the West Slovak Furniture Factories and the Research and Development Institute of the Woodworking and Furniture Industry.

/Answer/ That is correct, but for me that is not the happiest solution. In general--every general manager should be able to put together a VHJ even without such, so to say, auxiliary steps.

/Question/ What do you specifically have in mind?

/Answer/ Technological development calls for stricter application of economic control. That is not done and that is why mistakes tend to occur. I am of the opinion that one can speak of a scientific production association only when the relations within the association are based on khozraschet /cost accounting system/. Just as they are doing, for example, in the Soviet Union.

/Question/ Comrade Minister, according to your words, the sector is now first of all endeavoring to correctly determine the developmental concepts of the individual branches and, in followup, their technological policy conceived within the wider scope of tasks of socialist international economic integration. From this aspect, from interlinkage of these two or, more precisely, three tasks, how does the present state look?

/Answer/ I agree with you, we are discussing these problems in a wider scope. What we have to do in chemistry is narrow down the assortment of products, concentrate--research included--on what we can handle. We are endeavoring to improve quality and innovation in the shoemaking industry. In the past, in the interest of increasing the productivity of labor we concentrated on producing footwear of the simplest designs. We went for mass production, but at the expense of reduction of some qualitative features, for example in design. However, such an approach cannot be adopted any more. In the future, we must make greater use, particularly in the finishing phase, of our renowned skilled craftsmanship and fertile imagination. In other words, we shall put a greater emphasis on utilization of production, on utilitarian value. Of course, our endeavors in this respect will also depend on the actions and decisions of other organs.

/Question/ Could you be more specific?

/Answer/ For example, the function of the ministry throughout the control sphere still remains unsolved. Should, e.g., proposed principles for a new control system become implemented in a way that would rescind the departmental fund for technological development, we will find ourselves in a difficult, one might say precarious, situation. Then we will have recourse to only three possibilities--cadre

control, directive authority and begging. Beyond our jurisdiction there is a need for final resolution of some legal matters relating to secondary raw materials. After all, for the time being these matters are just left more or less to voluntary compliance, they are not subject to balancing at state plan level. Another equally important problem is inevitability of modernization and overhaul, but also specialization and concentration of production, if for no other reason, or, primarily, because it is objectively inevitable and of economic advantage to us if we adapt ourselves to what will result from the expected development of international socialist economic integration in which we should participate in our own interest more actively and purposefully. But how can we meet the tasks of modernization and renovation when we have inadequate means for doing it? I know, economizing applies to everybody and that is why it is even more important to carefully weigh wherein and how much of resources to invest. Under our conditions, e.g., we are very hard put to meet more fully the demands of foreign, and especially of domestic, trade in regard to the consumer goods industry, because that is precisely where some developmental programs were curtailed. But the same thing applies to chemistry as well. Yet, there are still certain ways out of the predicament. One of them consists in combining resources for procurement of, let us say, some instrumentation that the organizations could borrow according to their need, or use jointly. And that applies particularly to the sector of science and research.

/Question/ All the problems we have discussed so far are more or less related to the international division of labor. The industrial sector enjoys, on the whole, good cooperation with the Soviet Union, but in socialist economic integration, as you already pointed out, there is some room for improvement.

/Answer/ Our cooperation with the Soviet Union is extensive. Nevertheless, we are aware of the fact that it can be substantially expanded and promoted further, provided that we meet one basic condition on our part. Namely, that we fully meet this or that assortment of products for our Soviet customers. That is why I pointed out that, e.g., in chemistry we must narrow down the assortment of products and, naturally, subsequently subordinate to that end also the activities of our R&D facilities. This applies in analogy also to the furniture industry. In a word, if we want to become a serious partner, under conditions of socialist international economic integration we must supply in the requisite amount and quality whatever is asked for by the customer.

/Question/ In connection with accelerating R&D, achieving improved quality and efficiency, a very topical problem is also remuneration of creative personnel, application of the merit principle.

/Answer/ The system of incentives for them must undoubtedly be changed. The mistake was our transition in the past to time-related,

mostly quarterly, payment of premiums to research, development and creative personnel in general. In other words, we stopped evaluating the results of their efforts and, instead, we were evaluating their attendance in showing up for work. An equally important role in this respect is also played by the need to reinforce the party core.

/Question/ However, motivation of people is not only a matter of money....

/Answer/ That is true. We motivate and spur people on to more work also by providing good leadership, by nominating professionally, morally and politically mature individuals for joining the party, by making it possible for creative workers to become specialists, to expand their knowledge in their profession, etc. Nevertheless, in spite of it all, the system of material incentives should not be underestimated and must be based on the socialist principle of merit and the right of collective assessment of the degree of merit earned by individuals. I am convinced that in the area of R&D any and all social consideration have no justification.

/Question/ We agree with you that it is imperative to accelerate transition to a brigade-type form of organization of labor and of remuneration in relation to the final results produced by labor. As regards expansion of knowledge, did you have in mind postgraduate courses?

/Answer/ As regards brigade-type forms of organization of labor and of remuneration, we must do more in this respect. However, where postgraduate courses are concerned, the opposite is true. So that you understand me correctly--when they are led and lectured by people no matter how smart they may be, if they lack practical experience, the courses will be an exercise in futility. From the viewpoint of acquiring new knowledge, of much more importance and advantage are tours of duty abroad, where our specialists could acquire in a relatively short time not only new knowledge, but would also return with proposals of how to apply new findings in our conditions. Regrettably, it looks as though we have totally abandoned tours. Certainly, there is a need for savings, but it seems to me that by refraining from sending people for tours of duty abroad, we are actually going against ourselves.

/Question/ In other words, the significance of temporary tours of duty must receive appreciation in all respects, in a differentiated manner, of course. But they ought to be organized not only for personnel from preproduction stages, but also directly from production.

/Answer/ Without a doubt. After all, e.g., the head of a pattern shop must be the heart and soul of a textile mill, stylists and designers of a furniture factory. But is that what the situation is? It is not, e.g., in the New Home enterprise in Spisska Nova Ves which turns out furniture worth Kcs 600 million annually, only 12 people are engaged in preproduction stages. And the cited example is certainly no exception.

/Question/ And that then constitutes use of the reasons for inadequate innovation of individual types of products and increasing stockpiles of finished products. However, all-round recognition of the significance of preproduction personnel is also a task for the management of individual enterprises.

/Answer/ Understandably so. Directors and leading managerial personnel in each enterprise must be aware of the fact that the quality of products, efficiency of production and productivity of labor are decided primarily in preproduction stages. If the latter is paroxysmal, then the remaining production also progresses in "stop and go" fashion. The level of qualification of personnel in this phase of production is largely a reflection of the level of qualification of the director and management of enterprises. It is to be regretted that in some of them it is specifically these preproduction workers who are sent out first in case of need to participate in various work brigades, an act actually deserving punishment. Regrettably, in many an enterprise this is fairly frequent practice. As regards stockpiles of finished products, that must be viewed as a problem of failure to comply with the principles of plant management.

/Question/ What does this specifically involve?

/Answer/ It is not infrequent for enterprises to consider the production plan to be one matter and the marketing plan to be another matter. However, in no case can they be considered in isolation. Actually, the way I figure it, there is a need to look for new approaches in planning as well, in the sense that, e.g., we should start seriously dealing with the plan for 1985 as early as January of next year. And, as I have already pointed out, give in its compilation due consideration to utilization of production, meaning to utilitarian value.

/Question/ Would that not be avoiding responsibility?

/Answer/ In no case, just the opposite! Of course, in my opinion the meeting of tasks in individual sectors is not the responsibility of only the relevant sectoral ministers, but also of leading representatives of transsectoral organs who must join us in solving problems, looking for points of departure. That is also why I am an advocate of the party's economic committees at which it is possible, practically behind a single table and with participation by all interested parties, to solve problems much faster, where anonymity is lost and it is possible to achieve a uniform degree of familiarization with the topic at hand from where there is but a step to unification of opinions and procedures.

/Question/ It follows from our discussion that not even R&D can be set apart from the overall economic efforts of the sector. Nevertheless, which idea relevant to it would you care to underline?

Answer What counts is to put together sagacious, professionally and politically mature people to correctly reach, on the basis of wider aspects of the development of international socialist division of labor, at a concept for planned development of individual sectors. That should be then followed up by development of S&T. And that applies, it seems to me, to the entire national economy. Once we accomplish this, I am convinced that R&D will not only be accelerated, but that we will also overcome many economic problems and that the results will be considerably better.

8204

CSO: 2400/106

PROBLEMS HAMPERING R&D PROGRESS VIEWED

Bratislava PRAVDA in Slovak 23 Nov 83 p 4

/Article by Eng G Penkovsky: "Are We Against Ourselves? Who Is Hampering Application of R&D Progress?"; passages in slantlines printed in boldface/

/Text/ /Socioeconomic development of society will depend more and more on how well we will be able to arrive at new scientific and technological /S&T/ findings and how expediently and effectively we shall apply them in practice. And this does not involve merely application of the results of efforts of our R&D base, but also implementation of inventions and improvement suggestions, around 300,000 of which we record every year, as many as 338,000 last year. In spite of the fact that their net results amounted in 1982 to more than Kcs 10 billion, for the time being, all these resources are used inadequately. This was pointed out--not just by chance--also by the Eighth Plenum of the CPCZ Central Committee and the session of the CPSL Central Committee./

We cannot but regret when some results of R&D efforts, inventions, improvement suggestions are applied laggardly, slowly, or even lie around in some desk drawers.

The time needed for solution of significant R&D tasks is still relatively long, lasting on the average 5½ years. Shortcomings in this respect were pointed out by C Lenart as early as the nationwide R&D seminar in May of 1980 and the Eighth Plenum of the CPCZ Central Committee as well as reiterated at the session of the CPSL Central Committee.

Unused resources for high-quality production and efficiency can be detected without any complex systems. Hidden resources must simply be looked for in the initiative of workers, engineers and technicians in every factory.



## Findings Made by the Office of Public Prosecution

At the same time there comes into the foreground a number of problems. For example, those pertaining to what kinds of motivation and criteria are effective and whether the system of remuneration makes adequate provisions for people who are actively engaged in S&T. Whether we show adequate appreciation to people who courageously advance accelerated development of tasks and promote progress in &RD.

Public prosecutors are coming into contact with the shady side of technoeconomic practice. There are still cases where creative work, new style of thinking in factories as well as in other places of work is not meeting full understanding. On the contrary, improvement promoters, inventors and other proponents of progress in many instances find obstacles flung at them to block their way.

What are we specifically referring to? /First of all, there occur disputes in regard to rewards. Some managerial personnel refuse payment of rewards to people who, e.g., came up with a proposal about how to eliminate manual labor in a certain sector, or make production less expensive, or otherwise contributed with their skills and talents to technological progress./ Are they not aware that through such an approach they are causing damage to the common cause? It is hard to tell what leads them to such "zeal."

/However, the Set of Measures gives prominently preferential status to new and viable products of a high technical, economic and esthetic level. It equally opens up the way to improved utilization of raw and processed materials, savings of energy, reducing of transportation and nonproductive expenditures. Specifically, in enterprises of the general machine building sector, for each koruna saved in this manner it is possible to increase the basic component of wages by Kcs 0.30-0.38. For that reason, a contrary approach which suppresses the initiative of improvement promoters and inventors is against the law./ In such a case the public prosecutor's office is charged with protecting the law. But let us be specific:

--Some time ago, Frantisek Ebergenyi submitted a motion for initiating criminal prosecution against personnel of the Iron Ore Mines enterprise in Roznava. He was led to doing so by the fact that his improvement suggestion, entitled "Elimination of Slump Faults Behind the Stefan Mine on Maly vrch," was implemented in the enterprise. However, they soon informed him that his "improvement" was economically ineffective. In the end, on the basis of an advisory expert opinion, the Regional Public Prosecutor's Office in Kosice determined that the complainant was right and issued instructions for criminal prosecution of the involved official of Iron Ore Mines.

--The case we are about to bring up is one of the "better" cases. Jiri Moravec and Miroslav Pokorny demanded a reward for their improvement

suggestion from the Slovlik enterprise in Trencin. Only after matters reached the District Court in Trnava did the interested parties come to an agreement. Slovlik obligated itself to paying J. Moravec and M. Pokorny Kcs 13,249 each. The district court concurred with the agreement. But did matters really have to progress that far?

--The Jaslovske Bohunice nuclear power plant appealed a final judgment reached by the Regional Court of Bratislava which made it liable to pay Albert Bezak an award of Kcs 11,823. It justified its "protest" by the fact that for the same social benefit he had been granted an award by the Skoda Enterprise in Pizen and requested the chief SSR prosecutor to lodge a complaint for an infraction of the law. The chief SSR prosecutor did not accommodate the nuclear power plant, because the judgment was consistent with the law. The Skoda Enterprise in Pilsen paid the improvement promoter for use of his patent and the power generators were to award him for use of his improvement suggestion. In addition, an improvement promoter has the right to be paid an award by all the enterprises that make use of his improvement suggestion.

--In another case, Ernest Uvacik justifiably entered into litigation against the Chirana concern enterprise in Piestany. The issue was Kcs 25,000 to be paid for his improvement suggestion regarding reduction of the layer of hard chromium coating of products. The enterprise was rearing on its hind legs, as Uvacik's improvement suggestion had already been applied to another product. Ernest Uvacik's wish came true on the basis of an expert opinion. The court granted his proposal and obligated Chirana to pay him Kcs 25,126.

--A very valuable improvement suggestion was submitted by Vasil Zolna from the Chemka plant in Strazske. Actually, there are two. The first one for removal of iron from methanol by means of a filter, which even in the first year resulted in savings of more than Kcs 5.1 million to the enterprise and to society. The second affected increased production of formalin and brought in the first year a profit increase of Kcs 580,000. The litigation was joined by the public prosecutor. The matter was dragged through courts, because the relevant authorities incomprehensibly chose to rule against the promoter. In the end truth prevailed.

It would be possible to cite many such examples. They are surprising. After all, discoveries, inventions, improvement suggestions and industrial formulas represent an inexhaustible source of social, technological and economic progress. The significance of this sphere is made obvious also by the fact that every single year the Bureau for Discoveries and Inventions submits comprehensive reports to the federal and both national governments. Our scientific research base solves almost 30,000 tasks annually, moreover we register in our society more than 7,000 inventions a year and, as we already mentioned, over 300,000 improvement suggestions. This is no small amount in volumetric expression, but the fact is that we need even more of them. However, this requires that nobody dissuade people from engaging in promotion of improvements by formalism and an irresponsible approach.

## In Support of the Law

Personnel of the SSR Public Prosecutor's Office are endeavoring now more than ever before to prevent within the framework of their control activities any infractions of the law as regards creators and implementers of improvement suggestions, inventions, discoveries and industrial formulas. This involves primarily Law No 84/1972 of the Codex which has fully proved its worth in practice and is a good instrument for managing development of the inventors and improvers movements. Nevertheless, all the possibilities it offers are not used to the full extent and its provisions are sometimes being transgressed against. In a number of cases, organizations do not meet their obligation to enable the innovator to comment on the results of their review before they reach a decision. Infractions are also committed against another provision of the mentioned law through an organization's failure to submit a patent application for an improvement suggestion within 2 months from submission or through its failure to inform the improvement promoter why it had not done so.

We will have to develop more effort in all of these areas to help a worthy cause take root in our life. We must more resolutely put an end to practices evinced not just by the mentioned specific cases of suppression of initiative in the innovator movement. Put an end to conduct which is in sharp contradiction of the provisions of the Set of Measures and what recently was improved upon also by the plenums of the CPCZ and CPSL Central Committees. This calls for a fuller, more versatile application of the socialist principle of merit so that the social and economic position of every worker be fully dependent on his contribution to society. And so that a contrary approach be viewed as an infraction against the socialist legal system.

8204

CSO: 2400/106

## CZECHOSLOVAKIA

### CSSR-USSR TRADE PROTOCOL FOR 12 BILLION RUBLES SIGNED

Prague RUDE PRAVO in Czech 2 Dec 83 p 1

[Unsigned article: "Czechoslovak-Soviet Trade in 1984--Exchange of Goods Will Exceed 12 Billion Rubles"]

[Text] Moscow, 1 December (CTK)--A protocol on the exchange of goods between the CSSR and the USSR for 1984 was signed Thursday in Moscow by the ministers of foreign trade of the two countries, Bohumil Urban and Nikolag Patolichev.

The protocol includes reciprocal commitments of the two countries based on a long-term agreement on the exchange of goods and payments between the CSSR and the USSR for the period 1981-1985 and from other economic agreements specifying a regular annual increase in mutual deliveries of goods.

The volume of goods to be exchanged in 1984 exceeds 12 billion rubles and represents an increase of about 12 percent compared with 1983. The CSSR continues to hold one of the top positions in the foreign trade of the Soviet Union, and the USSR remains the chief trading partner of the Czechoslovak Socialist Republic.

In 1984 the Soviet Union, on the basis of specialization, will deliver to the CSSR machine tools and electrotechnical machinery, mining equipment, road machinery, drilling, hoisting and transportation equipment and other machinery equipment.

Basic kinds of fuels and raw materials, essential for the planned development of the Czechoslovak national economy, will be delivered. Deliveries of oil and natural gas will fully satisfy the needs of the Czechoslovak economy. Coal, iron and nonferrous metals, iron ore raw materials, sawn timber, cotton and other raw materials will be delivered in quantities agreed upon. Cooperation will be developed to prepare the transit of Soviet natural gas across the territory of Czechoslovakia to countries of western Europe.

As in past years, the basic items of export from Czechoslovakia to the USSR will be various kinds of machinery and equipment, including those which will help meet the food program of the USSR. Among other things, we will deliver equipment for five grain silos of 50,000 tons each. We will also be supplying equipment for plants for the production of urea in Fergan, Severodonetsk and Odessa, each of which will have a capacity of 330,000 tons of urea annually.

There are also plans for deliveries of equipment for modernizing and remodeling enterprises of light industry and the food processing industry in the USSR, including equipment for a tanning plant in Yerevan, a footwear production cooperative in Voroshilov, mills for producing knitting fibers in Zhodin, for plants producing dried milk in Novogrudok, Klecko, Kovel, Pyarna and Poloczek, and also for breweries in Novo Kuznetsk, Magnetogorsk, Tbilisi, Saratov and others.

The protocol calls for considerably increased mutual deliveries of consumer goods. The CSSR will supply footwear, readymade and knitted products, fancy leather goods, fabrics, furniture and other goods and the USSR will supply television sets, radios, sewing machines, watches, cameras, electric shavers, electric coffee grinders, radio-tape recorders and other products.

Implementation of the exchange of goods as specified in the protocol will help both countries develop their national economies more successfully, raise the efficiency of production and more fully meet the people's needs for consumer goods in the CSSR and the USSR.

During negotiations for preparation of the protocol it was agreed that both parties will continue to work for expanding the exchange of goods between the two countries in 1984.

The extensive program for the mutual exchange of goods in 1984 between the Czechoslovak Socialist Republic and the Soviet Union attests to the dependable and constantly developing economic cooperation between them and the consolidation of the socialist societies under current difficult conditions.

The signing of the protocol took place in the presence of the CSSR ambassador to the Soviet Union, Cestimir Lovetinsky.

8491

CSO: 2400/123

OCTOBER 1983 PLAN FULFILLMENT SUMMARIZED

Prague HOSPODARSKE NOVINY in Czech 25 Nov 83 p 2

[Report by Dr Eng Vaclav Cap, CSc, Federal Office of Statistics: "October 1983"]

[Text] According to the requirement stated by the presidium of the CPCZ Central Committee, based on the evaluation of results of the first 6 months, the fundamental economic task for the remainder of this year is to maintain the present time lead achieved during the first half year in the fulfillment of the planned production volume and adjusted value added, while observing the specified directions in which production should be spent. An obvious prerequisite for this is to continue along the present road of improving efficiency and creating conditions for development during this 5-year plan.

The October results again confirmed that there are sufficient reserves in our economy for fulfilling this task. In October, which had one working day more than October 1982, industrial production increased 5.3 percent in comparison with the same month last year. As a result, the surplus in the fulfillment of the production plan further increased from Kcs 4.4 billion at the end of June and Kcs 5.9 billion at the end of September to Kcs 6.4 billion. In comparison with the same period last year, industrial production increased 3.4 percent during the first 10 months of this year. The fact that the working time was 2 days longer this year also contributed to this increase. Average daily production during 10 months was 2.7 percent greater than last year.

Despite these facts it is obvious that enterprises will not be able to take it easy in November and December. Every enterprise, particularly in the processing industries, must keep in mind that it is just not any production that matters, but production which the economy needs and which will not remain frozen in inventories. Production above the plan of products demanded in domestic trade, foreign trade, for finishing investment projects of key importance must replace the present excessive production in the assortment which can be sold only with difficulty. Production in seasonal sectors such as the sugar refining industry, where production comes to an end much earlier this year than last year, will also have to be replaced.

On the basis of the results achieved in the first 10 months, it is obvious that the requirement stated by the Presidium of the CPCZ Central Committee met with the best response by the enterprises of electrical engineering industry, where

production increased 15 percent in October and 8.5 percent during the first 10 months over the same periods last year. The annual plan calls for only 5.8 percent production increase. Production rapidly increased also in the enterprises of general engineering--10.2 percent in October and 5.9 percent since the beginning of the year. It is, however, necessary to pay special attention to some production programs in relation to sales. It is difficult to maintain the surplus of production over sales in some branches of light industry, and the plan was again not fulfilled in the wood pulp and paper industry.

In view of the foreign trade orders, the fulfillment of the plan ahead of schedule was made possible by the sectors consuming a great deal of energy and raw materials. In the metallurgical industry, for example, production increased 2.1 percent during the first 10 months over the level during the same period last year, although the annual plan calls for 0.9 percent reduction. Likewise, in the chemical industry production increased 3.1 percent during the January-October period (the annual plan anticipates a 0.3 percent increase). Production of building materials is approximately at the planned level.

Equally favorable results were achieved by industrial enterprises in the plans of adjusted value added. The plan targets were met 102.3 percent during the January-October period and the surplus of Kcs 4.7 billion achieved in the plan fulfillment during the first half year increased to Kcs 5 billion by the end of October.

The results achieved in the fulfillment of the plan of industrial products' sales also demonstrate that enterprises have complied on schedule with the detailing of annual tasks: they met the targets set for deliveries to domestic trade by 101.5 percent (at retail prices) deliveries for export to socialist countries (at FOB prices) by 105.7 percent, to nonsocialist countries by 101 percent and deliveries of machinery and equipment for investment projects (at wholesale prices) by 101.3 percent.

Although the targets are generally met by industry as a whole, there are quite a few enterprises which lag behind in the plan fulfillment. During the first 10 months of this year, almost 23 percent of all enterprises failed to meet the targets in the production volume, almost 14 percent of enterprises in the adjusted value added, 17 percent in the sales to domestic trade, 12 percent in deliveries to socialist countries, 26 percent in deliveries to nonsocialist countries and 29 percent in deliveries for investment projects. The overall nonfulfillment of plans is often further intensified by the nonfulfillment of planned commitments in the deliveries of individual assortments, and this complicates the continuous and even economic development.

In the building industry, construction volume increased 1.3 percent in October and 3.1 percent from the beginning of the year in comparison with the same periods last year. The plans of construction volume were fulfilled 101.6 percent in October and 101.2 percent from the beginning of the year. More than 30 percent of enterprises have failed to fulfill the production plans since the beginning of the year. Construction enterprises have still not fully succeeded in effective concentration of capacities on the priority projects and on accelerated completion of projects under construction. The number of simultaneously constructed buildings is still considerable and results in a large ratio of unfinished projects and freezing of funds in them, but also in long construction periods.



In agriculture, fall work was essentially completed and tillage is being finished now. Despite the 11 million ton harvest of grain crops it will be necessary to economize with all types of fodder and to maintain the herds of domestic animals on the level anticipated by the plan because it will be not possible to rely on the fodder imports. The favorable trend in the purchase of animal products continued. The food industry could process available meat, milk and eggs into a more varied assortment of food products, particularly cheeses. In comparison with the same period last year, the purchases increased 57,000 tons of slaughter animals and poultry, 510 million liters of milk and 156 million eggs. Favorable food supplies were thus created for the current economic year.

Foreign trade registered an improvement in October and made up for the September deficit. Export to the socialist countries increased 17.1 percent in October and 12.3 percent from the beginning of the year. In accordance with the plan, imports from these countries exceed exports to them. In relation to the non-socialist countries, exports registered a rapid 14.6 percent increase in October and a 22 percent increase for 10 months in comparison with the same periods last year. The rate of increase is thus somewhat higher than anticipated by the annual plan. Nevertheless, the targets set for export of some engineering and electrical engineering products were not met.

The efficiency of our national economy continues to be evident from the good results achieved in the management of finance. During the first 9 months the share of material cost (excluding depreciation) and services of immaterial nature was 0.70 points below the annual rate, and the share of total cost 0.84 points lower. Together with the increased output, this resulted in the substantial increase in profits above the plan. On the other hand, the assortment structure of production for the domestic market and lower foreign trade efficiency resulted in smaller revenues from the sales tax for the state budget than anticipated and lower profit from foreign trade.

The dynamism of personal consumption expenditures again accelerated in October so that the rate of increase in personal incomes matched that of personal expenditures. The state plan had anticipated a bigger increase in expenditures than in incomes. The retail turnover of the main trade systems increased 1.4 percent in October and 2.8 percent from the beginning of the year in comparison with the same periods last year. Monetary funds owned by the population increased more rapidly in October. Deposits amounted to Kcs 187.3 billion as of 30 October and were Kcs 13.6 billion bigger than a year ago. The money supply increased by Kcs 2.5 billion during the year and amounted to Kcs 50.5 billion.



Basic Indicators of National Economic Developments in October 1983

<u>Increase Over Comparable 1982 Period (in percent)</u>	<u>Oct</u>	<u>Jan-Oct</u>	<u>State Plan</u>
Deliveries of the Centrally Administered Industries for:			
--investments at wholesale prices	-	1.5	-12.5
--domestic market	-		
at wholesale prices	-	3.2	0.5
at retail prices	-	2.6	2.0
--export to socialist countries			
at wholesale prices	-	7.2	1.2
at FOB prices	-	8.5	3.8
--export to nonsocialist countries			
at wholesale prices	-	4.4	- 3.2
at FOB prices	-	-2.0	- 2.6
--other sales for industrial production and other operations at wholesale prices	-	1.7	-
volume of industrial production	5.3	3.4	1.8
average number of employees	0.3	0.5	0.7
labor productivity based on industrial production	5.0	2.9	1.0
Construction			
construction work performed with internal labor resources	1.5	3.2	- 0.1
average number of employees	0.3	-0.1	0.6
labor productivity based on construction work	1.8	3.3	- 0.7
housing units delivered by contracting enterprises	18.8	-0.5	- 6.1
Procurement			
slaughter animals (including poultry)	12.7	4.0	- 1.3
milk	7.2	11.7	1.1
eggs	8.0	6.8	2.2
Retail Turnover			
of the main trade systems	1.4	2.8	2.1
Foreign Trade <sup>1</sup>			
export to socialist countries	17.1	12.1	9.9
export to nonsocialist countries	14.6	2.2	0.5
import from socialist countries	21.0	13.4	13.9
import from nonsocialist countries	-8.1	-3.9	- 5.1
Personal Earnings of the Population	1.9	3.1	1.5
of which income from wages	2.5	2.6	1.1
Personal consumption expenditures	2.7	3.1	2.3

<sup>1</sup> Data on actual results (based on FOB prices) refer to actual transactions and the state plan (in contrast to overall actual results) do not include unplanned actions within the framework of cooperation, unplanned reexports trade, exchanges and conditional trade transactions, etc.

10501

CSO: 2400/139

RAW MATERIAL STRATEGY IN ECONOMIC INTENSIFICATION VIEWED

Prague PLANOVANE HOSPODARSTVI in Czech No 9, 1983 pp 38-50

[Article by college lecturer Eng Jiri Safar, ScC, and Prof Zdenek Soucek, ScD, LLD: "Raw Material Strategy in the Program of Intensification of Czechoslovak National Economy"]

[Text] The analyses of correlations in the implementation of socioeconomic objectives of socialist society, presented at the 16th CPCZ Congress, the 26th CPSU Congress and at congresses of other fraternal communist and workers' parties in socialist countries, indicate that conservation of resources of raw materials, fuels and energy are especially important for conservation of all resources in the advance of the socialist process of replacement which accompanies the transition of socialist economy to an intensive stage of its development.

In planning rational management of the resources of raw materials, fuels and energy (also with regard to the environment), the raw material strategy of national economy must be conceived comprehensively so as to proceed from gradual implementation of an intensive type of the social process of replacement (from all its attributes) as from the fundamental, long-range transformation of all aspects in the life of socialist society.

The raw material strategy in national economy as a specific area of management consists of systematic, organized creation of conditions for a long-range rational process of testing, adopting, acquiring and exploiting sources of raw materials, fuels and energy, for their replacement, including provisions for the development of recycling of materials based on studies of natural, geological, ecological, technical and socioeconomic laws (trends appearing over an extended period). Another facet in the raw material strategy is the system of reserves implemented in the management of raw materials (efficient forms, volume and deployment of supplies).

--The state's raw material strategy (in its framework, the raw material strategies of individual sectors of national economy) is implemented as a comprehensive process--in conjunction with other tasks in the development of national economy. Raw material strategies of enterprises, V&H's [economic production units] and branches constitute its integral part.

--The raw material strategy proceeds from, and also determines, the commodity strategy. The development of products, and with it the changes in the structure of the branches of production, proceed from the strategy of public needs. Thus, the commodity strategy serves as a basis for all prospective considerations on the part of central planning agencies in the ministries, VNH's and enterprises. The main factors shaping the structure of the production are reflected in it, but by the same token the trends appearing in the resources and their exploitation determine the commodity strategy in selecting the raw materials, energy, technologies, specific consumption of materials and energy, and in the design and utility values of the goods, including their potential replacement in another life cycle after being worn out (potential for recycling).

--The raw material strategy continues the supply strategy and is connected with the strategy of establishing foreign relations, particularly with opportunities for the acquisition of imported raw materials, fuels and energy and with the development of socialist economic integration. It is organically intertwined with the strategy of the scientific development of production, with the development of technologies and with technical development of production. It is reflected in principle achievements of all primary directions in the development of sciences and technology--automation, chemization, electronization, robotization, biologization, etc.

--Moreover, it is related to environmental protection and care. The objectives of the state's long-range raw material policies, based on the knowledge of the natural, technical, economic, social and other conditions, must respect the opportunities (limitations) provided for future development by natural (ecological) subsystems.

To summarize the situation, it may be said that raw material strategy affects every sphere, factor and relation in the social process of replacement. It represents its specific systemic projection. At the present stage of the building of a developed socialist society it is part of the strategy for an intensive economic development, which proceeds from the necessity to intensify Czechoslovak economy and to upgrade its efficiency.

The social process of replacement is intensified by numerous processes whose forms differ but whose essence is the same, namely, by means of relative conservation of resources and by improving their efficiency. In the process of intensification the share of the increase in the efficiency of labor productivity is expanded to the detriment of the share of the increase in employment; the share of the increase in the efficiency of consumption of raw materials and energy is expanded to the detriment of the consumption of their amount, etc. The growth of national income and consequently the development of the living standard are achieved more and more by conserving the sources of production and improving their efficiency (to the detriment of the increase of their volume). In the intensive type of the economic growth the production is raised mainly or totally by conservation of the resources (by their higher efficiency).

These processes are expressed in the most general terms by an intensive economic development where conservation of resources becomes an essential and then the only factor in the growth of the production. The development of every other area--social, cultural, environmental and other--in society's life conforms to this fundamental qualitative change.<sup>1</sup>

The difficulties in the determination of the criteria for the transformation of the economy to its intensive type are caused by the complexity and multiformity of the process of intensification and by the level to which it is known. It is obvious that this does not involve only the growth of efficiency of public work and its decisive share in increasing the production, or the raising of production efficiency of fixed production assets, accelerated turnover of supplies, a higher degree of utilization of raw materials, fuels and energy, or the amount and the changing structure of manufactured utility values, which, taken individually, characterize the transformation of the economy into its intensive type. These partial processes of development result in an intensive development of the national economy only in their sum total and in their interdependence, along with other changes in the life of socialist society.

Processes of intensification represent neither new directions nor new methods in conservation of resources. They had been apparent for a long time and continuously. The new quality of these processes and, thus, also their extraordinary importance in the CSSR at present stem necessarily mostly from the level of the development achieved by our socialist society and from the tasks that must be fulfilled along with the growth of prosperity and with the comprehensive development of our socialist society. The long-range objectives in the socioeconomic development of the CSSR may be achieved only if the social process of replacement will gradually turn into a predominantly intensive process.

The urgency of the tasks connected with the intensification of the Czechoslovak national economy, however, depends also on the given situation, quality and extent of the resources for the economic growth, i.e., on the current domestic situation. In the final analysis, it stems from the changed external conditions for the economic development of Czechoslovak economy. Intensification of the economy in terms of conservation of raw materials, materials and energy (in totality, of materials) pervades the entire social process of reproduction.

Conservation of materials in the given extent of utility values results in a relatively lower drain on materials and energy from existing resources. In this way society is spreading out for itself a potentially broader fan of opportunities for longer and more rational exploitation of resources. This aspect of intensification appears particularly important in case of nonrenewable resources and nonconvertible raw materials and fuels, and in general sources of raw materials and fuels which are in short supply due to their consumption.

At the same time, conservation of material means conservation of space. In its consequences it also relatively reduces the volume of transported materials, and thus conserves social labor. Within the framework of the social process of replacement all different types of conservation of material may be converted to conservation of time, i.e., also of social labor exerted by society to satisfy its final needs. In these correlations intensification appears as a specific requirement of environmental protection and care.

#### 1. The Necessity and Main Aspects of Raw Material Strategy in the Process of Intensification

Although no unity of views on the contents of certain categories in the theory of management of long-term socialist economic development has been reached, it is possible at least to characterize the main aspects of the strategic management and, in its framework, also the basic traits of the raw material strategy in the national economy.

General interpretation of the strategic management refers to that part of the process of management whose task it is to formulate the principal goals in economic development and the method for their achievement, over the longest possible period of time for which the course of processes affecting the operations of a given unit may still be estimated with an appropriate degree of probability.<sup>2</sup>

The development of the management of raw materials in every country is increasingly affected by the extensive, practically worldwide environment--by the changes in the worldwide system of raw materials. The raw material policy of individual states reflects therefore the tendency in the development of the resources of labor subjects, in the development of production technologies, in the development of the structures of utility values and also the tendency of the political, social and cultural development in the world.

Conversely, however, every more significant step in the function of the economy of raw materials--in view of its linkage with other areas of the national economy--is distinctly reflected also in other spheres (in the standard and structure of manufactured goods, in foreign trade relations, in nonproduction branches, in the environment, etc.). In general it may be said that in consequence of scientific-technological development, the social division of labor has become more intensified, and that the rate as well as the intensity of all sectors of national economy are increasing.

The objective of the raw material strategy is to organize closed flows of materials within the given production complexes. Wastes from production or processing and worn-out products in those complexes are regenerated and recycled. With wastes utilized as sources of secondary raw materials, with the declining utility life of the resources of conventional materials and the expanding scope of exploitation of nonconventional raw materials, in other words, with the development of opportunities to satisfy certain

needs of the national economy with various resources of different kinds of raw materials, or conversely, with the utilization of the same type of raw materials for the production of different utility values, satisfying with them various final needs--the fan of realistic substitutes for raw materials, which differ in their efficiency, unfolds wider. Nevertheless, desirable preconditions must be created for such objectives over a long period.

With the growing intensity of the exploitation of all resources and all factors of external nature, the number of mutually antagonistic objectives has been increasing; on the level of economic organizations they appear as "conflicts of interests" in the exploitation of certain resources, as clashes between the economic, social, cultural and ecological objectives of those organizations or society.

When calculating long-term supplies of raw materials and energy for the national economy, i.e., management of resources, it is increasingly difficult simply to extrapolate the tendencies thus far and to continue only to expand the dimensions of current operations. The changes in the volume and structure of final consumption, newly developed goods, scientific achievements, new technologies, etc., induce changes in the structure of the production and demand that the impact of the scientific development on various areas of production, distribution and consumption of raw materials, fuels and energy be predicted.

Many decisions concerning the exploitation of resources, environmental pollution, replacement of renewable sources of raw materials and their ensuing consequences are irreversible. So much more crucial is it to recognize the consequences of those decisions on the raw material system, environment or our society's life. In general, it may be noted that with the receding horizon of the consequences stemming from the currently adopted solutions, the scope of potential remedies which they offer is shrinking.

Individual objectives in the development of the raw material economy have various weight (quality, order, degree of progressivity), are related to different levels of management, and differ in their experience in terms of their implementation. As for the given situation of resources and the conditions for their exploitation, individual objectives may be implemented in certain sequences, in a certain order. Requirements for their implementation are based on the premise that the priorities for such progressive changes, the sequences of their implementation, the coordination of operations and their synchronization, etc., be determined.

Implementation of individual objectives in time has many economic aspects linked with the volume and type of costs as well as with the realization of the effects (in the form of various types of conservation). Actions with different correlations of resources, returns in investment, etc., must be combined from this point of view.

In this connection it may be also mentioned that every fundamental progressive change in the system of raw materials generates considerable demands for one-time investments (scientific-technological development, geological survey and research, investment funds, manpower, and so on). In addition, it also requires--depending on its scope--time for its implementation.

These arguments confirm from another perspective the serious character of strategic control in the management of resources. They emphasize the selected aspects of efficiency in the development of the economy with raw materials whose level is determined mainly by fundamental, long-range decisions. After all, that follows from the very nature of individual types of natural resources.

The need to improve strategic control of raw materials management stems therefore from objective reasons. If they were ignored, considerable economic and noneconomic losses would be incurred and the overall economic and social development of our society would be slowed down. The tendencies rendering strategic control of the raw materials system imperative will become even more important in the future. Trends generally evident in advanced economies of the socialist states are further magnified by current problems with which the Czechoslovak economy must deal.

The need to improve strategic control may be briefly summarized as follows:

- efficiency must fundamentally increase in the oncoming stage of the development of the Czechoslovak economy;
- this fundamental growth of efficiency may be achieved only by fundamental measures of economic intensification, in the areas of structural changes, scientific and technological development, investments and management;
- these measures must be implemented by the whole system of progressive technical, social, organizational and economic changes affecting a wide area (suppliers and consumers, the infrastructure, and often reaching beyond the confines of national economy);
- the implementation of those actions will be very challenging.

For those reasons an efficient development of raw materials management may be achieved only if strategic control is enacted on a high level and if it becomes an integral part of the system of management of the entire socialist economy. Strategic control must be based on profound knowledge of the processes which it directs.

If we analyze the course of the processes in terms of operational or tactical control, we can see that these processes are very repetitious, that the basic properties of individual factors are usually essentially unchanged, that many factors are either known or certain, and that considerable inertia is evident during those processes.



The strategic processes are quite a different story; their course is characterized by several specific traits. Above all, many factors are uncertain or unknown, which enhances the probable nature of those processes and is reflected also in the quality of information; distinct quantitative changes and qualitative reversals take place in the development of individual processes, and thus recurrent phenomena in which inertia may be presumed are more or less exceptional.

The feedback effect on processes occurring in the management of raw materials is very pronounced. Causes and effects are not closely connected in time and space. The causes of the development of a certain factor in the management of raw materials and its complexes "may be far apart" and also very distant chronologically. Great differences appear between the efficiency of individual solutions considered from the short-term and the long-range points of view. Solutions that are advantageous for a brief period may seem totally inefficient from the long-range perspective, and vice versa. Nonlinear relations (for instance, in the area of costs, development of demand, etc.) are very conspicuous among partial processes which are taking place in the economy of raw materials.

Strategic control is focused on the vital, most significant progressive changes in the raw material system and its main factors. Accessible financial and material assets are also concentrated on the implementation of such changes, creation of conditions and provisions for their realization. By the same token, these progressive changes in the raw materials economy are oriented on top solutions, on practical application of new scientific and technological achievements.

The analysis of the current situation provides the basis for relatively accurate projections for the near future. Moreover, the short-term objectives are greatly determined by the existing conditions. On the other hand, strategic control proceeds from considerable flexibility and variability of those conditions. It operates with substantially fewer restrictions (in sources of funds, manpower, facilities, etc.). The sinking level of predetermination and credibility of information of the increasing risk with the expanding distance of the goals require work with variants of estimates and consequences of the implementation of intended objectives.

The variants of the solution of stipulated objectives:

--are comprehensively conceived and include all relevant areas and estimates;

--respect all relevant correlations;

--observe the most important anticipated changes, in other words, proceed from the unity of goals, means, socioeconomic and ideological conditions--are processed as a system.



The variants of the solutions for the raw material strategy are processed on the basis of information from several natural, social and technical disciplines of sciences; the premise is the interdisciplinary character which helps prevent any biased, incomplete and distorted solution.

For successful accomplishment of the tasks in strategic control, improvement of its quality and, thus, also efficiency of those operations it is most important to realize these and other specific traits of the strategic processes occurring in the management of raw materials.

## 2. Proposals for Intensified Raw Material Strategy in Czechoslovak Economy

--Processes of intensification observed from the point of view of more thorough utilization of sources of raw materials, fuels and energy directly saves above all a quantity of material and energy by lowering their specific consumption without changing their quality, in other words, by reducing specific consumption of raw materials, fuels and energy per unit of utility value. However, this group of savings includes also conservation of materials and energy achieved by upgrading their quality (by greater "efficiency"), by better exploitation of the properties of their inner structures in the production of a given amount of utility values. Finally, thorough utilization may also be added to such savings of the sources of useful materials and energy, which appears from another perspective as their lower specific consumption.

--Furthermore, indirect savings of material and energy which help intensify the economy are achieved by upgrading the quality of the production, manufacturing new goods that consume less raw materials and energy, by substituting advanced, "more efficient" materials for conventional raw materials and fuels, and by utilizing waste and worn-out utility values as secondary resources of raw materials.

--The third group consists of indirect savings. Intensive development of economy is characterized by distinctive changes in the share of specialized operations in the social process of replacement, which result not only from the above-mentioned conservation of raw materials, fuels and energy but also from well-planned structural policy--curbing resource-intensive productions and, conversely, stimulating the development of branches that conserve raw materials, energy and space. Thus, structural changes are not only a product of intensification but have their specific active function in this development.

From the analysis of the changes in the structure in general we may note that they are generated by the changing conditions of the resources and their exploitation and better quality of applied techniques and technologies, and that they are the consequences of the changing final needs of society as well as a result of expanding international division of labor and of the development of conditions regulating imports and exports of goods. They are organically intertwined with the process of improving the planned management of socialist economy.

First of all, it is logical that in an intensive development the impact of the so called branches of raw materials and materials and their relation to the branches manufacturing gross final production (investment assets and consumer goods) must necessarily change. The dynamism of growth in the intensive development of those branches (mining, raw material, semi-production branches) is characteristically lower than in the branches of final production. In other words, this means that the production of final use values is achieved in the production with permanently reduced consumption of raw materials, materials, energy and semi-finished products.

Such a development of the material structure of production is evident also from the changes in the value structure of social product. The dynamism of growth of consumption in the production declines in relation to the newly created value--national income. The relation of the dynamism of individual components of consumption in production is changing. Among the described structural changes are changes in the growth, quality and relations of the factor of production, i.e., changes of the factorial structure, especially in the group of labor subjects.

Changes in the size of production units, their higher concentration, intensified specialization and, consequently, in the development of cooperative relations and combination of the production of various branches in individual production conglomerates represent a specific structural tendency affecting the consumption of raw materials, fuels and energy.

Considerable simplification is unavoidable when we discuss the forms of conservation of raw materials, fuels and energy as results of intensification of national economy. Division of savings into the above-mentioned groups therefore offers only schematic outlines of certain correlations.

The strategy aimed at the intensification of the Czechoslovak national economy--and within it, the raw materials strategy--displays distinctive idiosyncrasies in individual branches of the national economy, and occasionally follows also apparently contradictory processes.

Above all, the domestic mineral raw materials base is a specific area. Strategic objectives in the utilization of domestic resources of useful minerals proceed mainly from an effective strategy searching for, and surveying, new domestic primary resources. Data provided by the survey should offer necessary information for the changes anticipated in the structure of the national economy. Information thus far suggests that there are conditions for further identification of the sources of bituminous coal (in the subgrade of younger sediment formations and in unfavorable mining conditions), polymetallic ores, antimony and lead- and zinc-bearing ores, liquid and gaseous hydrocarbons (in nontraditional areas and at great depths) and especially non-ore raw materials, although the occurrence of many of them (raw materials for the production of fertilizers, sulfur, fibriform asbestos, etc.) has not been expected in the territory of the CSSR. Nevertheless, we regard as important the

sources of those non-ore raw materials that are exported (floating kaolin, magnesite, clays, glass sand, flour spar, graphite, products of fused basalt, etc.). However, the unusually deteriorating conditions in a great number of the sources under consideration indicate that the survey operations will be increasingly expensive and material-intensive.<sup>3</sup>

In conjunction with the results of the survey, the raw materials strategy is further aimed at efficient expansion and optimum exploitation of our domestic sources of mineral raw materials, in accordance with the criteria of socioeconomic efficiency, including environmental protection. The expansion of our domestic raw material base, which reduces the CSSR's dependence on imports (especially of ores), is a prerequisite for the development of branches based on domestic resources of raw materials (particularly the resources of non-ore raw materials), and makes their export possible.

Intensification of the mining branches depends essentially on the creation of preconditions for maximum utilization of our domestic resources--of the existing open mines, quarries and the already built mining and processing facilities. This direction is especially important in the case of deposits in which a very short life span of total workable reserves of brown and bituminous coal, including lignite, is anticipated (up to the year 2020). The share of the reserves that may be obtained from the total accountable deposits amounts to about 75 percent for lignite, but to far less for bituminous coal. More thorough utilization of the deposits will prolong the life span of total reserves as well as of the existing mines, decrease the need to open new locations, and multiply the efficiency of investments. Furthermore, it slows down the growth of average costs of mining. (Thus, mining conditions do not significantly deteriorate).

Current worldwide trends reflected in the shrinking life span of many vital metals, and other materials which are crucial for the economy also urgently demand comprehensive utilization of the ore and non-ore deposits. However, in agreement with that must act decisive criteria of efficient exploitation (cost limits, the conditions for workability, indicators of the plan) which should meet the actual needs of thorough utilization of our raw materials resources from the perspective of long-range efficiency.

The Czechoslovak base of non-ore raw materials has (due to the low concentration of extraction, its diffusion in numerous locations, organizational subordination of mining enterprises to different ministries, unsatisfactory inventories of resources) abundant untapped assets for the utilization of deposits.

Comprehensive utilization of deposits presupposes the exploitation of the so-called side products, waste, mined waste rock, sludge, etc. Such processes are connected with the utilization of secondary sources of raw materials in the form of the existing waste banks, dumping grounds, overburden, etc. In the CSSR the amount of waste and side products from

mining and processing of coal alone is estimated at nearly 350 million tons annually, from ore mining and processing at 3.4 million tons, from non-ore mineral mining and processing at 22 million tons; in general, however, the degree of their exploitation is unusually low.<sup>4</sup>

Many wastes, especially the older ones (for example, in waste banks) contain ample amounts of metals and other valuable raw materials. In terms of raw materials strategy it would seem useful to survey these wastes more thoroughly as potential resources (for instance, of silver--in sludge beds of some Sb deposits--ores, gold, lead, zinc, copper, antimony, tin and tungsten).

Side products obtained while mining non-ore raw materials (for example, marls, sinters, anhydrite, spongilits, etc.) also represent potential raw materials for the industry of construction materials.

An integral part of these strategic objectives consists of long-range efficiency analyses of secondary raw materials replacing raw materials from primary sources. Current price relations and other value criteria, however, can hardly serve as a dependable point of departure for such considerations. Methodical principles must be applied again in analyses of long-term efficiency.

Our existing natural wealth may be exploited more thoroughly if we develop wasteless technologies for conservation of resources. Therefore, the future objective in the exploitation of coal will be to increase the share of its utilization as chemical raw material. Its chemical processing produces about 350 different products. Direct conversion of coal into heating or synthetic gas or liquid products makes it possible not only to utilize its components more thoroughly but also to arrest toxic pollutants. More intensive primary processing will conserve crude oil.

Ore deposits may be exploited more thoroughly with maximum mechanization and even automation of mining and processing operations. Among the objectives of the process of intensification is also gradual creation of technical, technological and organizational conditions for the exploitation of minor deposits (including mobile processing and other facilities).

For better utilization of our resources ample untapped assets still exist in the group of non-ore raw materials. Precisely those resources are being mined and the extracted original raw materials are being processed in obsolete facilities which process only top-quality materials. Original raw materials of inferior quality are wasted (in case of kaolin, etc.). Concentrated preparation of workable substances provides organizational opportunities for the comprehensive utilization of technically advanced facilities and improves labor productivity, conserves energy and upgrades the quality of the products.

A higher level of exploitation of original raw materials helps develop another form of social organization of production--combination of consecutive technologies--from a simpler to a more advanced form of processing and treatment of raw materials (for example, concrete production works in conjunction with the production of high-degree limestone for industry, lime and concrete production).

Finally, one of the measures of intensification is the effort aimed at more comprehensive conversion of raw materials of a given quality, or a measure preventing degradation of that quality. Here we speak, for instance, about using high-quality limestone for the production of aggregates or for other, less demanding needs, processing of top-quality kaolin for cheaper ceramic goods, etc. Processes of substitution efficient in terms of economy and resources are also linked with such measures.

Thus, prerequisites for the development of unconventional and prospective sources of raw materials are also being resolved within the program of intensification in the raw material strategy. Among the nonconventional types of raw materials we include those which have not been generally used to date, however, which may replace in the future the currently used raw materials, if appropriate economic, technical, technological and other conditions are created. In the group of prospective (advanced) raw materials we include those materials whose development is linked with the production of technically advanced products (development of electronics, equipment for nuclear centers and other developmental branches). The production of many of those substances calls for the production of trace elements, for instance, Ge, Li, Rb, Co, Nb, Ta, Sc, Zr, Hb, etc. Feasibility of future production of some of those substances in the CSSR is under consideration.

The raw material strategy in the conditions of the fuel-energy complex is aimed, in addition to the above-mentioned directions, mainly on lower consumption of fuels and energy in the entire national economy by rationalization of the processes of production and nonproduction operations in the form of innovation of products and technologies (in the framework of the energy base and by consumers of energy). Among the most energy-intensive productions in the CSSR are the production of blast iron, rolled materials, agglomerate, SM steel, forged and pressed pieces, pig iron castings, ferroalloys, steel pipes, electric steel and steel castings. These products share 32 percent of the final energy consumption. Next in this sequence is the production of concrete, melted glass, lime, masonry materials and construction blocks, aluminum, calcium carbide, etc. In total, these 32 most energy-consuming products use almost two-thirds--and the first 10 of them more than one-half--of the final consumption of energy.<sup>5</sup>

An extensive area for raw materials strategy is the optimum improvement of the structure of primary sources of energy, characterized by a declining tendency of the share of coal and by an increasing share of the nuclear energy complex, with a growing share of new, unconventional sources (solar and geothermic energy, bio-gas, etc.) and with an increasing impact of energy generated from secondary sources (waste, utilization of low-potential heat from cooling circuits in nuclear power plants, from technological processes, etc.).

Among these strategic objectives in the development of the fuel-energy complex are also the following:

- optimum development of the structure of final fuel and energy consumption;

- organic integration of the development of the complex into the ecological and hydrologic subsystems, environmental protection, recultivation and minimization of the negative effects of environmental pollution;

- strategy to improve the control system, mechanisms and normative regulations for the implementation of the objectives in the development of the fuel-energy complex;

- intensification of international cooperation, particularly further development of socialist economic integration.<sup>6</sup>

These individual directions in fuel-energy strategy contain numerous partial measures with different requirements of funds and different schedules for their achievement. It needs to be added that not all those measures are of a purely strategic character, which after all applies just as well for some other partial strategies in the rawmaterial system we have mentioned.

Insufficient domestic resources of certain economically vital raw materials, including resources of fuels and energy, the rising share of imports in total consumption of raw materials and other trends evident in the amount and structure of the prices of fuels and raw materials, in the exploitation of the resources and in the consumption of raw materials, in relations of imports of raw materials and the export equivalent, have transformed exports and imports of raw materials and energy into a vital area for intensification, for example, also of types of raw materials such as non-ore materials whose share in imports in 1980 amounted to about 3.7 percent. The strategy of intensification is focused mainly on efficient exports of raw materials (for example, kaolin, magnesite and others) with regard to the situation in domestic extraction, on efficient structural policies aimed at high returns of the export equivalent, and on efficient forms and methods of future acquisition of foreign resources.

As for other primary resources, the raw material strategy is focused on the protection of agricultural land resources, expansion of the acreage of cultivated agricultural lands (by transfers of lands temporarily used for other purposes, of hillside areas and previously uncultivated lands to agricultural land resources), improving their quality (higher share of humus in the soil and its higher nitrification, etc.). The objective in our forest economy is gradual, systematic solution of the problem of replacement of forest growth, improving the production of timber in terms of volume and time, and restoration of crops destroyed by pollution by cultivation of more resistant species of trees, and protecting the conditions for the fulfillment of all other functions of the forests, especially in terms of water economy. The concept of long-range



development of forest cultivations and their structures in the CSSR proceeds from the changing natural and other conditions for their replacement. This strategy consists in part of measures aimed at protection of the afforested lands and on slowing down the rate of their degradation.

Raw material strategy in the development of water economy is focused on the required supply of water of desirable quality and on high economical utilization of water resources (for instance, by construction of storage tanks, distribution networks, facilities for reverting water from water-rich to water-poor areas, recycling, etc.). Among the especially relevant measures is the systematic construction and remodeling of waster water purification stations.

The long-range raw material strategy must proceed from the totality and mutual determination of individual types of resources, from a certain "threshold of sensitivity" of the ongoing natural processes or functions of the ecological systems. Furthermore, it must proceed from the fact that an increasing amount of substances and types of raw materials extracted from nature at the same time raises the losses of correlated sources of raw materials (for example, the use of gravel sand increases the loss of underground waters). For that reason, next to material objectives of the intensification program, it is imperative to study specific mechanisms and specific instruments in the system of planned management which make their implementation possible, among them above all such organizations of management that will facilitate the implementation of a unified economic policy in the management with our natural wealth, create the groundwork for the solution of partial short-term problems in our national economy, and our societywide and long-range needs.<sup>7</sup> Economic evaluation of natural resources and objects holds a special position among the mechanisms existing in the system of strategic control of exploitation of resources. Therefore, in the conditions of the CSSR, the specification and application of methodical principles of evaluation deserve special attention. Other criteria for optimum exploitation of resources are being developed in conjunction with these principles.

Other complexes in the programs for the intensification in raw materials strategy represent branches of the processing industry, including a broad system of progressive objectives in the development of the raw materials system, which are considerably differentiated in their significance and determined by the current situation in the economy of raw materials, fuels and energy, by the tendencies in the resources and structure of the produced utility values as well as by the development of methods for processing of raw materials.

The initial circuit represents, generally speaking, optimum utilization of domestic resources. Next to the sources of fuels, minerals and other resources we have already mentioned, thorough exploitation of the sources (primary and secondary) of wood pulp and efficient utilization of a higher quota of inferior timber, whose share is growing in accordance with the intensity of the effects of toxic emissions on forest economy, are being resolved in the framework of raw materials' strategy.

Branches of the glass and ceramic industries, which are among the most intensive in terms of raw materials and energy but for whose development we can obtain substantial amounts of raw materials from our domestic resources, are trying to articulate a concept for the comprehensive exploitation of deposits (for example, glass sand, kaolin, porous clay, etc.), to create conditions for efficient substitution of raw materials (for example, by using titanate kaolins, low-grade sand) and to utilize the sources of secondary raw materials. One of the vital prerequisites for the implementation of this objective is the development of finishing and processing facilities.

The direction for the development of the use of synthetic fibers of new modifications and generations is considered significant for the textile industry. The current quality and structure of synthetic fibers hamper the development of high-quality goods and negatively affects the flexibility of the reaction to the changes occurring in the world. The raw material base of this branch may be expanded, for example, by a further development of sheep raising, by rationalization of flax cultivation and by recycling of the waste in textile and garment industries, of used textiles, chaff and other sources of secondary raw materials. Improvement of utility values of conventional raw materials, better utilization of their amount and quality as well as the development of opportunities for the utilization of secondary sources are of specific significance for the development of the raw material base in the leather-processing industry.

The raw material base in the metallurgical and engineering complex will be greatly expanded by more thorough utilization of secondary sources of iron and nonferrous metals and by a further development and application of chemical substances. This area also contains an unusually broad system of strategic solutions which shall not be mentioned here in detail.

The raw material base in our chemical industry will be expanded in the coming years by better utilization of the primary and particularly secondary sources of raw materials. The raw material base of secondary sources will be developed primarily by:

- processing of waste (for example, sludge);
- comprehensive processing of raw materials (for example, regeneration of used oils);
- recycled waste (for example, in the rubber and plastics industries).

Other important areas of intensification are:

- better utilization of raw materials and materials in the metal-processing and wood industries, of waste in the primary wood industry and in the wood-processing industry, in the chemical industry, namely, by the development of technological innovations, more advanced production equipment and substitutes for raw materials;



--measures focused on reducing the need to import raw materials by replacing them with domestic raw materials;

--innovation of products to improve their quality and change in the structure of goods, which will reduce the consumption of energy, raw materials and fixed assets in the branches. These directions are especially urgent in the further development of the engineering and electrical industries as well as in metallurgy, in the chemical, glass and wood-processing industries, and in the branch of production of construction materials;

--the development of international cooperation, intensified cooperation of the CEMA countries and, within it, in particular of individual forms of international specialization and cooperation in production, for the purpose of conserving fuels, energy and raw materials and of developing conditions guaranteeing long-term supplies of raw materials and energy from foreign sources.

One of the premises for the articulation of a raw materials strategy and its successful implementation is continuous development and application of the data system.

No long-term projection of structural objectives aimed at indirect conservation of fuel and raw material resources has sufficiently crystallized thus far because it is very complex and depends on many conditions. The structure of Czechoslovak economy will be developed in the coming years with the focus mainly on the design of the optimum structure in engineering production, the fuel-energy complex and on the development of the metallurgical, chemical and consumer industries. If the development of metallurgy will demonstrate a certain degree of stabilization in the future years, or some slowdown, it will be replaced by advanced metallurgical production in the development of foundry production. The development of the electrical engineering industry and of branches of machine engineering production will become selective in accordance with the future integration of those branches in international division of labor. The point of gravity in the development of the structure in machine engineering will be in the branches and sectors of productions based on the scientific technological development of manufacturing equipment and technologies, the development of progressive trends in the demand for machine engineering products in the world, and, in particular, of the needs of the USSR and other countries in the CEMA community. Precisely the sectors that safeguard the growth of export capacity of the branches, that achieve the desirable dynamism of innovations in our national economy and that fully meet their production potential in Czechoslovak machine engineering will be preferred. Consequently, the objective is also to obtain the highest value from the consumed resources, including the current production base. It is obvious that the most complex considerations of the development of the structure of the branches are precisely in the vital branch, i.e., machine engineering. The development of electronics and electrical engineering is of pivotal significance in the raw materials strategy, but not only there, which follows from the effect of production in the branch on the overall development of both the production and nonproduction spheres.

Raw materials strategy holds a vital position in the framework of the implementation of the pivotal objective in the CSSR's socioeconomic development. Its directions for the coming decades, which we have mentioned, are selected topics whose justification will be further tested, intensified and developed.

#### FOOTNOTES

1. J. Vaner, K. Safar: "Theoretical Solutions of Economic Intensification," NOVA MYSL 12, 1982.
2. The chronological schedule for this concept of strategic control mostly coincides with the period anticipated by the system of planned operations for the long-range projection of national economic development of the CSSR, and its basic directions. Decision of the CSSR Government No 10 to 20 January 1983 stipulates that the main directions be processed for the next two 5-year plans (for the next 10-year period). The methodological aspects of strategic control in the raw material system of national economy, described further, also apply for that 10-year period.

The rising dynamism, variability and irregularity of the development of basic conditions and relations in the social process of replacement increasingly call for long-term management, i.e., urgent, short-term objectives must be resolved from the viewpoint of the future. Therefore, strategic control of the economic development in all socialistic countries is becoming the fundamental premise for highly efficient social labor. This requirement is particularly relevant precisely for the development of branches producing raw materials which must operate from the perspective of 30-40 year projections. Extraction of mineral resources requires a period of 10 to 15 years. Moreover, it takes an exceptionally long time to replace the resources in forest economy. The program for the development of other raw materials and energy areas also requires similar--although not quite as long--schedules. Long-term projections of the objectives in the development of the raw materials system are important also because of its other specifics. Furthermore, strategic control of the development of the raw materials economy in our state calls for comprehensive solutions and successful implementation of the objectives in their totality, with the focus on all the most relevant projections of the system--requirements and correlations--and in relation to the environment. Among the most significant correlations are the interconnections of the long-term objectives with the solution of material, systemic, territorial, branch and institutional preconditions. Organic interrelations with natural subsystems are among the idiosyncrasies of this sector in the process of replacement.

3. M. Vanecek, et al.: "Exploitation of the Domestic Base of Mineral Raw Materials" (Materials for SPEV 901), Prague UGV PF UK 1983.
4. M. Kalny, et al.: "National Economic Problems in the System of Branches of Raw Materials. Secondary Non-Ore Raw Materials." Keramoprojekt, Prague 1982. The above-mentioned groups contain only secondary sources of non-ore substances; however, it is axiomatic that many of them, for example, some overburdened materials, cannot be regarded as economically usable.
5. Research study of the VUPEK, Prague 1982.
6. Material of the VUE, Prague 1982 ("What Do We Know About PEK? Suggestions for the Solution of the Control System in the Fuel-Energy Complex").
7. In this conjunction it is of particular importance to "...protect efficiently the already surveyed deposits of mineral raw materials from destruction, misuse and underutilization." (M. Vanecek, et al.: "Exploitation of the Domestic Base of Mineral Raw Materials.") This demand is generally valid and applicable to all sources of raw materials.

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CSO: 2400/100

## AGRICULTURAL SHARE IN ECONOMIC DEVELOPMENT DISCUSSED

Prague PLANOVANE HOSPODARSTVI in Czech No 9, 1983 pp 51-60

[Article by Prof Eng Dimitrij Choma, Dr Sci: "Agriculture and Its Share in Effective Development of the Economy"; passages in slantlines printed in bold-face]

[Text] Agriculture as an organic part of the country's economy directly affects the effectiveness of the national economy as a whole by its production and economic results. Its position in the country's economy cannot be subjected to an entirely objective assessment in accordance with such criteria as, e.g., its share in the generation of national product and national income. It is primarily assessment according to national income--in whose generation in our country agriculture contributes less than one-tenth--which unjustly is pushing other criteria into the background.

The basic function of primary agricultural production is production of raw materials through the processing of which are obtained nutrient products. In this respect, it is an indispensable sector and this indispensability is hardly of a temporary nature. At the present time, there is no indication that mankind will forsake conventional forms of agricultural production on soil. All non-traditional forms will rather become sources for meeting increasing needs, rather than substituting for the currently known form of producing agricultural raw materials through tilling of agricultural land resources. Economic theory is certainly justified in considering per capita generation of national income as a basic criterion of the economy's functioning. National income meets social needs through its naturally concrete form and consists from this viewpoint of newly generated production means destined for expansion of production and increasing of available resources as well as from the total mass of objects for personal consumption. From the viewpoint of the concretely natural as well as the value aspects of national income, agriculture participates in effective development of the economy in keeping with how well it meets social needs in both the volume of structure of utilitarian values as well as in dependence on the amount of labor and means expended per unit of utilitarian value.

The relative stability of utilitarian values of agricultural primary production and the possibility of a relatively accurate determination of needs make it possible to determine the long-term dynamics of agricultural production and

its structure and, at the same time, make better comparisons between future goals and past development. While the future is not just a mechanical continuation of the past, it allows us to correct our concepts and remain thus firmly planted in economic reality. Frequent analyses generalizing the findings of economic practice and routine empirical experience bear out the fact that in agricultural primary production, as in the entire agroindustrial complex, there exist many disposable sources for continued increases in the volume and effectiveness of agricultural production and final products of the complex. In the subsequent part of this study, we shall concentrate our attention particularly on the following problems:

- what the long-term development trends in agricultural production are;
- what the situation is in comparison with other countries and what lessons can be drawn from past development for envisioned future development;
- what potential resources for growth of production are offered by individual links in the vertical structure of nutrients for selected products;
- how to view potentials for growth due to overcoming differentiation in the enterprise sphere.

In comparison with the average for 1948-1950, gross agricultural production [HZP] in 1978-1980 in constant 1967 prices increased from Kcs 47.7 billion to Kcs 82.5 billion, i.e., 89 percent. Development of animal production was faster (126.8 percent) than that of plant production (56.1 percent). In addition to increasing importation of fodders, from the long-term viewpoint there are also other factors at work here--stagnation in the consumption of plant products and an increase in the share of products of animal origin necessarily led to growth in the share of that component of plant products which is destined for further processing through animal production. The distinctly higher rate of growth of agricultural production in Slovakia can be explained by its substantially lower initial level in the late fifties. The rate of growth of agricultural production over the past 20 years bears comparison with other countries that have advanced agricultural production. In 1980, our agricultural production increased in comparison with 1960 by 55 percent (which corresponds also to the time series based on averages for several years, i.e., the average for the years 1978-1980 as compared to 1960-1962). While this increase is lower than in Bulgaria, Hungary, Rumania, the Netherlands and Great Britain, it is higher than in the GDR, Poland, the USSR and in many advanced West European countries. The situation is similar also in the development of agricultural production per capita.

Development of Czechoslovak Agriculture  
in International Comparison  
(1960-1980, Year 1960 = 100 percent)

<u>Country</u>	<u>Development of HZP in %</u>	<u>Per capita Development of HZP in %</u>	<u>Annual Average Increase in 1961-1980 (%)</u>
CSSR	155	139	2.3
Bulgaria	167	149	2.6
Hungary	172	160	2.8
GDR	138	142	1.6
Poland	134	113	1.6
Rumania	205	167	3.6
USSR	152	124	2.2
Denmark	117	104	0.8
France	154	129	2.1
Italy	151	134	2.0
FRG	134	118	1.5
Netherlands	177	143	2.9
Austria	136	130	1.5
USA	141	113	1.8
Great Britain	157	148	2.3

Source: Statistical Reviews. Supplement of ZEMEDEL'SKA EKONOMIKA No 10, vol/1982.

Development of Agricultural Production in the CSSR  
(1948-1950 = 100)

Ukazatel (1)	Období let (2)						
	1960 -1962	1963 -1965	1966 -1968	1969 -1971	1972 -1974	1975 -1977	1978 -1980
a) Indexy bážícké (3)							
ČSSR							
1. HZP (4)	122,2	124,7	142,3	154,7	171,1	176,8	188,9
2. HRP (5)	111,7	111,2	127,7	133,3	145,0	146,2	156,1
3. HZP (6)	134,3	140,4	159,2	179,4	201,3	212,1	226,8
ČSR							
1. HZP	116,9	121,5	135,8	144,2	160,6	164,9	176,7
2. HRP	109,8	111,9	125,4	126,4	138,7	137,4	148,7
3. HZP	124,6	131,6	147,0	163,1	184,0	194,6	207,3
SSR							
1. HZP	132,8	130,1	155,5	177,5	192,2	207,5	220,6
2. HRP	113,3	107,0	129,8	145,8	155,8	166,5	174,1
3. HZP	160,2	163,2	192,9	222,8	248,3	264,3	284,8
b) Indexy řetězové (7)							
ČSSR							
1. HZP	2,6 <sup>1</sup>	2,1	14,1	8,7	10,6	3,3	6,9
2. HRP	1,7	-0,1	14,9	4,4	8,6	0,8	6,8
3. HZP	3,6	4,5	13,4	12,7	12,1	5,4	6,9

ČSR							
1. HZP	3,2	3,8	11,8	6,1	11,3	2,6	7,2
2. HRP	2,7	1,9	12,1	0,7	9,4	-0,1	8,0
3. HŽP	3,8	5,8	11,6	10,9	12,8	5,1	6,5
SSR							
1. HZP	0,3	-1,9	19,5	14,1	9,2	4,8	6,3
2. HRP	-3,5	-5,6	21,3	12,3	7,7	3,2	4,6
3. HŽP	4,4	1,8	17,8	15,9	10,7	6,2	7,8

Source: Ninth Congress of Uniform Agricultural Cooperatives, Federal Office of Statistics, Czech Bureau of Statistics, Slovak Bureau of Statistics, Prague 1979. Statistical Yearbook of the CSSR, State Publishing House of Technical Literature ALFA, Prague 1980, 1981. Own computations.

1960-1962 as compared to 1957-1959.

Key:

- |                                  |                            |
|----------------------------------|----------------------------|
| 1. indicator                     | 5. gross plant production  |
| 2. year spans                    | 6. gross animal production |
| 3. basic indices                 | 7. chain indices           |
| 4. gross agricultural production |                            |

A more detailed analysis of the development of our agricultural indicates an imbalanced increase in individual components of agricultural production. HZP in stable prices includes individual products regardless of their intended purpose--applying equally to the market part of production as well as to the intermediate product. As such it lends itself to being broken down into individual components.

Among the most favorably developing branches of plant production belongs without a doubt production of cereals. After all, while the annual production average for the years 1961-1965 was approximately 5.5 million tons, in 1976-1980 it was already in excess of 10 million tons. Planting acreage for cereals increased in that period by only 7 percent. In comparison to the 5-year plan period 1961-1965 the CSSR harvested in 1976-1980 a total of 80 percent more cereals. From among the mentioned countries, a higher increase was achieved only by Hungary (185) and from among Western countries by Austria (195).

The average yield for several years (1976-1980) in our country is the second highest from among socialist countries (3.69 tons, in Hungary 4.16 tons). Nevertheless, it is true that advanced capitalist countries (with the exception of Italy) achieved higher yields during the same period. The highly favorable development in the production of cereals creates general attention and its causes at the same time indirectly explain the less favorable development attendant to other plant products. In the case of cereals, there occurred an upgraded cultivation of the grown assortment of strains which made it possible to utilize the biologically materialized investment costs; the technological and other comprehensive advances made in all tilling technologies (soil cultivation, fertilization, harvesting, postharvest processing) facilitated maximum mechanization of all operations without detrimentally affecting the



intensity and quality of production, while in the case of cereals there is a possibility for long-term, relatively simple and fully mechanized storing with minimum losses.

In some quarters the idea was advanced that in no sector of agriculture (or even outside of it) were there created and applied en masse in so short a time entire complexes of scientific and technological progress that led to its basic change and a distinct increase in production in the course of a relatively short time. While it is true that in 1976-1980 cereal imports amounted to an average of 1.6 million tons, the share of net imports in consumption amounted to not quite 15 percent, while in 1961-1965 it was 24.9 percent and in 1966-1970 18.7 percent. The fact that even these plants harbor the potential for further increases is borne out by an international comparison of yields and, in regard to contemporary strains, differences in yield between comparable districts and, particularly, between enterprises that operate under approximately identical conditions. However, the main problem is obviously constituted by the need for a more effective consumption of cereals in production. After all, this purpose accounts for approximately 70 percent of consumed cereals (domestic production and net imports). The difference in consumption of grains among JZD [unified agricultural cooperatives] in individual regions in 1981 ranged as follows: per 1 liter of milk from 0.18 to 0.22 kg, per kg of weight increment in horned cattle from 1.53 to 2.17 kg, per kg of weight increment in hogs from 2.83 to 3.50 kg, per egg from 0.10 to 0.18 kg and per 1 kg of broilers from 1.73 to 2.10 kg (Statistical Reviews; Supplement of ZEMEDELSKA EKONOMIKA No 8 of 1982). The effectiveness of consumed grains depends on the complex of operations in animal production and, in particular, on how large a volume and of what quality and what other types of fodders are at our disposal. We consume a larger amount of grains per unit of animal products than some other countries with advanced agriculture. The cause obviously lies in the protein component of fodder mixtures and an inadequate amount of other types of fodders which to a certain extent substitute for grains.

/The basic pillars of plant production, without regard to the degree of specialization of production, are undoubtedly cereals, root crops (sugar beet, potatoes) and production of bulk fodders on arable land, on the one hand, and on meadows and pastures, on the other hand. The production program for routinely cultivated agricultural produce is further supplemented in the first place by horned cattle raising/.

In the CSSR, we have at our disposal approximately 1.7 million hectares of meadows and pastures and on 1.4 million hectares of arable land we cultivate perennial and annual fodder grasses. Animal production claims for itself a considerable part of available agricultural land. In view of the production results obtained so far on the specified acreages and the overall situation in agriculture and economy in general, it became necessary to orient future development toward a priority increase in plant production by using all the still persisting weak points of agricultural production. This necessity appears at the same time also as a realistic possibility. "Key attention must be focused on accelerated development of plant production as the basic element toward improved self-sufficiency. In addition to increasing the production of cereals...in view of our possibilities, we consider it imperative to increase



the production of bulk fodders and improve utilization of meadows and pastures. A substantial improvement must be achieved in cultivation of potatoes and industrial produce, particularly sugar beets...." (16th CPCZ Congress, Prague, SVOBODA 1981, p 30). The hay yield on more than 700,000 hectares of permanent pastures in 1976-1980 was higher by only 5 percent in comparison to the prewar period. The volume of perennial fodder grass production on arable land increased in 1976-1980 by only 22 percent in comparison to the first half of the sixties. There can be no doubt that production of bulk fodders represents at the current developmental stage one of the greatest available resources of our agriculture. However, it involves a sector that is highly labor-intensive. If agricultural enterprises do not have an adequate amount of suitable means for mechanization (agrotechnical soil tillage, harvesting) and suitable facilities for storing (to include final drying), they will be implementing the mentioned objectives only with great difficulties. It applies in general that the accessibility of the resources at our disposal is far from easy and equivalent.

Among the weak spots of our agricultural production and the entire agricultural food complex belongs /production of sugar beet and potatoes/ and, thus, of the end products produced on their basis. Their cultivation requires more than 8 percent of our arable land. They hold their position in production also as a factor renewing the fertility of soil. It involves two plants which can be used as examples for demonstrating the benefits of planning and management of the entire agroindustrial complex. In this case one can look for and compare hidden resources for improved effectiveness in all links of the vertical structure of the food industry. They also make it possible to demonstrate certain differences between national economy and enterprise approaches to their solution. The annual volume of sugar beet production in 1976-1980 increased in comparison to the first half of the sixties from 6.77 million to 7.17 million tons, i.e., a mere 6 percent. While the planting acreage did drop 8 percent, yields increased only 21 percent. The state of sugar content is also unsatisfactory. Its current level at 15-16 percent is lower than in many other countries. Let us assume that this represents an average of 15 percent, i.e., each percentile point of sugar content represents 6.6 percent of the final product--sugar. When the annual volume of refined sugar represents 700,000-900,000 tons, it is no small quantity. It means that the end product and its effectiveness does not depend only on the volume of the raw material produced in primary production, but also on its preservation prior to actual processing and, ultimately, on the yield.

It is specifically this vertical relationship which more than anything else offers an illustrative idea of the possibilities at our disposal: yields in an amount of 32.8 tons in an average for 1976-1980 are the second highest among socialist countries after Hungary, but lower than in the other countries mentioned previously. Contrary to cereals, their dynamics of development proved slower than in other socialist countries (with the exception of the GDR and Poland). Our sugar content is not satisfactory. Its increase by 1 percent represents a production acreage on the order of 15,000 hectares. The lagging level of harvesting technology causes considerable losses, particularly in inclement years. The considerable length of the sugar-processing season (some

sugar mills in the 1982-83 season worked until mid-January) causes a certain amount of losses in sugar content due to long storing.

From the economic viewpoint, the important fact is that a substantial part of the costs incurred in primary production, transportation and processing assumes toward the differentiated end product the form of a fixed expenditure. It is extremely probable that inputs for improved harvesting technology, into areas that lead to higher content of sugar in the succulent bulbs and to an improved processing capacity are economically more justified than increasing intensification inputs that should lead to increasing yields. This does not mean that we should make use of all the resources routinely at our disposal toward increasing the current level of yields. It was specifically in the case of this plant that the past 2 years provided an illustrative example of extreme conditions--in 1981, the extremely adverse conditions during harvesting translated into an above-average demand of harvesting operations on energy and considerable simultaneous losses. The reaction in the subsequent year could not obviously have been different from what it turned out to be--early start of harvesting, accelerated rate of operations, sooner completion of sugar beet procurement than ever before--resulting in a relatively long storing period prior to processing as its negative consequence. The impossibility of foreseeing weather conditions will make every decision in this respect a potential risk. There appeared opinions as to whether it might not be expedient to differentiate the procurement price for sugar beet according to the time of procurement (lower at the outset of the season, higher at its end) and thus prolong harvesting time. Differentiated prices would make it possible for enterprises to undertake the risk due to higher losses through prolonged harvest. Of course, in our economy a risk run by an enterprise is directly related to society as a whole. If we were to have at our disposal harvesting equipment which operates reliably even under less favorable conditions, then we could choose the variant which offers less advantage today.

An analogous example--the assessment of which from the viewpoint of the entire agroindustrial complex affords an insight into the hidden resources in production of final utilitarian values--are potatoes. We cultivate them on not quite 200,000 hectares of arable land, but their importance in potato-producing regions is understandably much greater. The yield of 16,500 tons in 1976-1980 is only slightly higher than that of the GDR and Poland, but considerably higher yields are achieved in many other countries. However, the problem with this staple are losses through storage. The primary task from the viewpoint of improving efficiency is the need for building storage facilities. At a meeting of agricultural experts from six districts of the Czechomoravian Highlands in March 1983 it was pointed out that losses in dug-out straw-covered pits amounted to approximately one-third. Losses sustained in transportation over longer distances from the point of production to the point of consumption are not negligible. Availability of modern air conditioned storage facilities is more of an exception than the rule. Their gradual construction will become reflected not only in the form of their effect--preservation of their utilitarian value with considerably lower losses and in utilization of a considerable part of their biomass for feeding purposes. Large-capacity storage facilities are also connected with sorting and additional processing (e.g., peeling) and in view of the fact that only the final product leaves the

agricultural enterprise, it will reduce the overall cost for transportation per unit of final utilitarian value.

Processing of agricultural products within agricultural enterprises is considered to be a part of subsidiary production. A significant document of the USSR's economic policy "Food Program" of May 1982 also answers, among other things, the question often discussed in the past: what is to constitute the object of activities of an agricultural enterprise and is it really always correct to limit its activities to obtaining raw materials? The resolution recommends building capacities for processing and storage of fruit and vegetables on a large scale directly at collective farms and state farms.

That facilitates improved utilization of the labor potential of agricultural enterprises, saving of transportation costs and utilization of waste products in animal production. Its analogy to the problems analyzed herein is undeniable. However, it involves still other economic aspects. At an average, potatoes were cultivated during 1976-1980 on 223,000 hectares of arable land resulting in production of 3,678,000 tons of potatoes at an average yield of 16.5 tons per hectare. Let us assume that the difference between the harvested and consumed mass amounts to 20 percent. That would represent a harvest on an acreage of 44,600 hectares of planting areas. According to the findings of the Research Institute for Economy of Agriculture and Nutrition in Prague, production costs per hectare of planting area for late consumption potatoes in CSR JZDs--without regard to the production region--amounted to more than Kcs 20,000. Losses of one-fifth in potato harvesting over the past several years alone represent almost Kcs 1 billion in production cost of agricultural enterprises.

One feature of agricultural production is its fluctuation between years. The less these fluctuations can be influenced, the more must they be taken into consideration in the sense of minimizing economic risks. /One of the signs of success achieved in cultivation of a certain produce in plant production is its yield and its balance over the years/. The leading place in this respect is held by cereals. Nevertheless, not even this sector managed to stay away from considerable fluctuations. If we interpret them as the difference in percentage points in comparison to a 5-year average in the examined 20-year period (four 5-year periods) the greatest difference for cereals was 29 points (sum of negative and positive differences in percent in comparison to a 5-year average), in the case of sugar beets it was 42 points, in the case of potatoes (1961-1965) as many as 78 points. While 10,948,000 tons of cereals were produced in 1978, in 1980 it was 10,699,000 and in 1981 merely 9.4 million tons. And this involves a plant with lower fluctuations between years. Last year this phenomenon became reflected in an extraordinarily rich harvest of some fruit varieties. We quote these known facts not as an unknown proof that

a) operation without natural backup stockpiles costs individual agricultural enterprises and society as a whole many resources from time to time (e.g., the 1983 transfer of straw from South Moravian districts to some districts in the South Bohemian region which suffered from considerable draught in the previous year),

b) processing capacities for products that cannot withstand prolonged storage and are characterized by considerable fluctuations between years should be geared rather to maximum than to average production results.

It is probable that losses due to lagging utilization of production facilities would be lower than the effects achieved through full utilization of raw materials in extraordinarily favorable years. A significant role could be played herein by subsidiary production in agricultural enterprises.

Agriculture represents a type of production in which research and development [R&D] is connected with technological innovations, while its products are marked by a relatively high stability. Structural changes in production programs are undertaken as part of known sectors and products. Of course, this is not intended to mean that there is no adequate room for application of R&D advances. Findings made in applied agricultural primary production and in other links of the complex bear out just the opposite. Very few variants advancing a certain concept proved to be correct. In theory and practice we distinguish between types of strategic and operational decisionmaking. However, what we envision as realistic for, e.g., the closing years of this century does not come to pass a year ahead of that, but through gradual implementation of today's decisions. A poorly thought out type of economic objective complicates the economy of an enterprise for many years and there is no wall sealing it off from the country's economy. After all, the fact that soil requires organic substance and that there is a connection between organic substance and the type of stalls for horned cattle is not some latest finding of agricultural science. /Limited resources and demanding development of the economy objectively call for transition to a systematically intensive type of development/. Earlier literature in the sphere of agricultural economy used to tie intensification of agricultural production to increasing inputs of production factors, whereby it envisioned their most varied combination. At the present time, resources are limited even in agriculture. In 1979, we used in our country 335 kg of pure NPK [nitrogen, phosphorus and potassium in agricultural fertilizers] nutrients per hectare of arable land (to include vineyards, hopfields, gardens and fruit orchards). That is 3.5 times as much as in 1960 and, in 1979, more than in other socialist countries (with the exception of the GDR) and more than in Austria, Italy, Denmark and France. There is no doubt that /industrial fertilizers together with new strains and modern agrotechnology appear as the key factors for increasing intensification of plant production/. On the other hand, there is no neglecting the fact which indicates that the effectiveness of comparable units of industrial fertilizers has been gradually decreasing in the course of the years 1960-1980. For example, between 1966-1970 the gross plant production per kg of pure nutrients amounted to Kcs 30, while in the subsequent 5-year periods it kept decreasing to Kcs 24 and Kcs 21 (in comparable prices of 1967).

This obvious stands as proof of nothing less than that there is a lack of harmony among production factors affecting increased plant production. The largest shortcoming is considered to be lack of organic substances. Thus, not only economic possibilities, but also the aforementioned fact make it imperative for the future to put a far greater emphasis on this second factor. If there are considerable unused resources in this respect, they are not due to

ignorance by those who decide matters in enterprises, but there are also underlying economic reasons. Production of stall manure is extraordinarily labor- and energy-intensive. Small-scale production of half a century ago could easily come to grips with this problem, because it had at its disposal an excess of manpower. The envisioned changes can hardly be expected to occur without suitable and adequate technological equipment (machinery and a spatially suitable layout of structures). Among decisions of a strategic nature undoubtedly belongs not only territorial distribution of production facilities, but also their capacities. From a certain level of capacity (e.g., the number of animals in stalls) the achieved positive effects are swallowed up by negative effects (supply of fodders and transportation of excrements over longer distances).

/Economic activity is very complex and, as such, it can be justifiably assessed in no other way than by means of a system of indicators/. However, if we choose as our starting point the key function of the sector and the limited nature of the basic production factor, then I am of the opinion that the decisive criterion for evaluation of activities will be the amount of utilitarian values obtained from a unit of soil. It is not without interest that even in agricultural economy there have been more and more frequently appearing over the past several years of terms like "systems of management," "system of plant production," etc. System of management as an objective reality did not disappear from agriculture even in times when such a term did not exist. A search for sources promoting effectiveness of agricultural production forces us to realize even such problems as to whether and to what extent the possibilities of production are constituted by various combinations of elements of the system. The relation between individual plants is both competitive and complementary. Every increase in the share of arable land in favor of one plant goes to the detriment of another plant. However, they could not exist one without the other (cereals, root crops, fodders) without a drop in the yield of all of them. What is to be the ratio between individual groups, which upper and lower limits are still admissible, what is to be the number of farm animals per unit of land, up to what altitudes above sea level is cultivation of cereals feasible and from altitude on up is the risk of crop failure unjustifiable, etc.--these are questions that have not been answered by far, particularly in individual specific conditions (districts, enterprises). The most varied variants of our system of farming and the resultant structures of planting acreages, planting procedures and rotation of crops call for a certain measure of stability. This stability, together with the effects of all the other factors is the prerequisite for a positive change in the development of agricultural production.

Efforts toward a general increase in production and effectiveness of the agro-industrial complex call for seeking of /unused resources for growth at all levels/. There can be no doubt that a significant source is the enterprise sphere and the state which found its reflection in the generally used term differentiation. That is not a new phenomenon. It is more easily detectable in agriculture, because within the jurisdiction of a single organ of management above enterprise level threr operates a larger number of enterprises and the latter are mutually comparable in regard to their orientation of production and, for their major part, in regard to their production conditions. However,



it ought to be pointed out that for the time being agriculture is the only one to have made this economic problem a public matter. Numerous analyses at republic, region and district level confirm that considerable differences exist between agricultural enterprises in regard to indicators reflecting effects as well as costs. In classification by groups and mutual comparison of groups, the relation between costs and output appears to be unequivocally in favor of outputs. However, that is far from applying to every single case--identical outputs in various enterprises are far from requiring identical costs and vice versa: an identical amount of expended labor and resources need not translate into identical achieved results. Overcoming of differences between enterprises and, particularly, improving the level of lagging enterprises is at the present time the subject of intensification programs in individual districts.

Differentiation as an economic phenomenon is becoming an economic problem to the extent to which some enterprises keep permanently lagging behind and fail to show the requisite dynamism of development. However, differentiation as a phenomenon does not cease to exist--through constant overcoming of differences between enterprises there occurs an overall improvement, whereby differences among them become reflected at another level. The essence of available resources for improved efficiency in this direction is constituted by the fact that leading agricultural enterprises proved in practice the potential for achieving higher results from comparable resources, eventually providing proof that an increased volume of resources invested per unit of land will produce higher results than in average and relatively weaker enterprises. The topical nature of this form of resources at the present time is constituted primarily by the fact that their mobilization is to a considerable degree connected with activation of subjective factors.

Most often used among categories expressing the results of productive activity of agricultural enterprises is the category of HZP in constant prices (including also the intermediate product), internal agricultural production (production in current prices reduced by the value of internal and procured agricultural intermediate product) and outputs, including also yields from nonagricultural activities. One of the possibilities for evaluating differentiation between enterprises consists in comparing the results of individual indicators with the average for the entire set of enterprises (of the district). Of particular interest is noting the individual enterprises and their distribution in groups.

Only in entirely exceptional cases does an enterprise included in one group in accordance with a certain indicator appear in the same group in accordance with other indicators. Considerable fluctuations in accordance with individual indicators are characteristic primarily of average enterprises. In each case such an analysis (in which each enterprise appears under a certain code number) shows the strong and weak points of enterprise activities, but also makes it possible to objectively evaluate the economic activities of one's own enterprise through comparison with other enterprises.

Number of Enterprises in Individual Groups According to Key Indicators  
Exemplified by JZD in Havlickuv Brod District in 1981

(District = 100 percent)

<u>Indicator</u>	<u>Groups</u>								
	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>
a) Per hectare of agricultural land									
Gross agricultural production	-	-	3	12	6	5	5	-	-
Internal agricultural production	1	1	4	9	3	2	8	2	1
Outputs	-	2	5	6	7	3	5	3	-
Material costs	-	-	6	7	8	5	2	3	-
b) Per worker									
Long-term production assets	-	1	3	11	7	4	2	1	2
Outputs	-	-	3	11	6	7	3	1	-
Value added	2	1	6	5	6	5	3	2	1
Wages and remunerations	-	-	-	7	18	6	-	-	-
Profit	6	-	1	1	1	-	-	-	14

Note: Groups and their intervals in % compared to the district average: 6 (up to 65), 7 (66-75), 8 (76-85), 9 (86-95), 10 (96-105), 11 (106-115), 12 (116-125), 13 (126-135), 14 (above 136); the eight missing JZD showed a loss.

/The process of social division of labor in our national economy has advanced to the point that even the process of economic renewal in agriculture depends more and more on proportional development of most sectors. Some potential sources for improving the effectiveness of agriculture and of the entire agro-industrial complex are found in the complex itself.

/However, some considerable resources lie outside of agriculture and the food industry. For example, inadequate replacement of machinery in agriculture leads to disproportionate obsolescence, unsupportable costs of maintenance and consumption of energy in excess of norms. In a country with machine building as advanced as ours, the agroindustrial complex should not be plagued with such problems in this respect. Losses are also influenced by shortages of effective chemical agents for plant protection and machinery for their application. According to computations of the Research Institute for Economy in Agriculture and Nutrition, the losses occurring due to shortage of sowing machinery (which affect the quality and timing of sowing) amount for cereals alone to approximately 350,000 tons, and due to not quite satisfactory protection of nutrients and uneven distribution of spreading of chemical agents to more than 1 million tons, etc.

/The societal problem of nutrition can be dealt with only by the contribution of all the sectors participating in the functioning of an advanced agroindustrial complex/.

CONSTRUCTION INDUSTRY RESULTS DURING 1983 SUMMARIZED

Prague HOSPODARSKE NOVINY in Czech 18 Nov 83 p 2

[Article by Vaclav Svarc, official of the CPCZ Central Committee: "Construction Industry"]

[Text] From January through September 1983 construction organizations in all branches of our national economy achieved 101.1 percent of the total volume of works performed by their internal labor resources, including 101.5 percent in the CSR and 100.4 percent in the SSR. The plans of adjusted value added were successfully met with 101.7 percent, including 102.4 percent in the CSR and 100.3 percent in the SSR.

The foremost characteristic of this development in the fulfillment of the plan was the stepped-up effort by the construction organizations aimed at reaching the stipulated goals adopted for 1983 by decisions of our party and governmental leadership and thus, at creating realistic prerequisites for the fulfillment of the plan for the whole year.

Construction organizations managed by the CSR Ministry of Construction earned the lion's share in the results achieved, with the planned volume of their construction works in the value of basic construction production for the January-September 1983 period 102.2 percent fulfilled and with a 77 share of the annual task of the state plan (the directive stipulated 75 percent).

In the internal structure of construction works labor capacities were focused on the most essential categories of construction projects and on constructions planned for completion during the current year. This has also been confirmed by the 89 percent share of the annual volume of completed works. As compared with last year's period, one-third more works in those construction projects have been completed.

In the internal structure of capital investment in the CSR, the primary focus was still on the mandatory construction projects of the state plan. The plan for the 9 months was 109.2 percent fulfilled in 192 mandatory constructions. The achieved share of the annual plan--82.3 percent--also reflected the accelerated implementation of construction projects a total of 257 construction programs were completed on schedule



and in 3 of those programs the deadline was postponed. Four construction programs have not been completed on schedule, namely: the Vertex construction in Litomysl--modernization of a factory where the investor applied of an extension; the V. I. Lenin Nines in Komorany--reconstruction of the finishing plant which had not been prepared by the investor; and a partial schedule in the construction of the nuclear power plant in Dukovany.

Although the total volume indicators have been successfully met on the territory of the capital city of Prague (111 percent) and in the North Bohemia kraj (109.4 percent), 10 public facility projects in Prague had not been completed and delivered and there were slippages in the cases of 16 housing units in the North Bohemia kraj.

All VHJ's [economic production units] within the Ministry of Construction of the CSR achieved the value of basic construction production in the period from January through September 1983, particularly the Surface Construction VHJ in Ostrava (105.7 percent with a 79.2 percent share of the annual plan), the Engineering Construction VHJ in Bratislava--enterprises in the CSR (104.1 percent, with a 78.1 percent share) and the Surface Construction VHJ in Usti nad Labem (102 percent, with a 76.5 percent share for the year).

Labor productivity was 103 percent fulfilled in basic construction production and 104 percent in adjusted value added; the branches maintained the balance of material consumption and costs; the profits were exceeded with 115 percent.

Although the volume of works performed by internal labor resources of the construction organizations in sectors of the SSR Ministry of Construction was 100.5 percent fulfilled (with 74.9 percent share of the annual plan), these indicators were set back by the failure of the Surface Construction VHJ in Bratislava to meet the plan (with only 99.7 percent). In this VHJ 6 of its 11 enterprises failed to fulfill their plan, namely; the Surface Construction Works in Zilina (only 97.2 percent), the Central Slovakia Construction in Zilina (99.6 percent), Priemstav [Industrial Construction] in Prievidza (97.4 percent), the Surface Construction in Kosice (99.7 percent), the Surface Construction in Poprad (97.1 percent), and the Surface Construction in Michalovce (99.6 percent).

Summary results for all sectors of the Ministries of Construction of the CSR and SSR for the January-September period of this year demonstrate that the construction works in progress and the gradual fulfillment of the tasks stipulated in recent years by decisions of our party and government leadership facilitated the overall fulfillment of the plan for basic construction production, but in particular regained the dynamism of construction (the 1983-1982 index--104.2 in the CSR and 104.5 in the SSR).

This improvement stems mainly from better utilization of the available internal resources and goal-oriented concentration of labor capacities on the planned construction under observation and in localities of concentrated capital investment in the North Bohemia kraj and in the capital cities of Prague and Bratislava. Not only the development of workers' initiative, but also weather conditions favorable for construction works helped during this year. Credit is due to the attitude and efforts of all employees in our construction production who made it possible to accomplish the tasks for this year and to make a good headstart for 1984.

Despite the good achievements in the fulfillment of the plan, our party and social organizations and economic management continue to face the problem of eliminating in a more intensive way the chronic shortcomings particularly in the quality of works in housing construction and its whole complex, in the management of construction operations and in the excessive volume of unfinished construction projects. Reconstruction of the internal structure of construction capacities, especially for acceleration of finishing operations, must proceed more vigorously. A more stringent approach in those areas is the prerequisite for continuous upgrading of efficiency and profitability of our construction industry and intensification of the whole process of capital investment.

Another branch of the Ministries of Construction of the CSR and SSR, namely, the industry of construction material production, is successfully meeting its tasks. The development in the fulfillment of the plan to the end of September confirms that this branch has been meeting its tasks of the volume and production line and also the efficiency indicator in a uniform and balanced manner. At the end of September the value of gross production in the CSR was 100.5 percent fulfilled, and the share of the task for the whole year was 75.4 percent fulfilled. Adjusted value added was 101.3 percent fulfilled and the share was 76.3 percent for the same period. The sector of construction in the SSR met its tasks of industrial production with 100.4 percent (share 75.2 percent) in gross production and 102.5 percent (76.9 percent share) in adjusted value added.

Auspicious results for this period, characterized by high shares of annual plans, set the groundwork for the orientation achieved before the end of September more than 75 percent of the annual plan in most decisive indicators. Industrial organizations succeeded in accomplishing this task almost in full; shares higher than average values achieved in the Fifth and Sixth 5-year plans were obtained in a number of indicators. At the same time, an analysis of the past period, however, underscores some risks that may jeopardize the fulfillment of the plan for 1983. This is essentially a phenomenon where, after the conclusion of all supplier-consumer contracts, the demand in our domestic market (as compared with the plan in consumer goods inventory) falls below the planned production.

This imbalance between the production and the extent of demands, reflected in the results most of all in the third quarter, scaled down by almost 30 percent the headstart gained in the first 6 months in gross production. This setback must be attributed to the Czechoslovak Brick Works VHJ in Brno as the only one in the ministry that failed to meet its tasks of the plan (gross production--99.8 percent, adjusted value added--97.8 percent). Among its main lines of products the objective structure of the plan for the manufacture of terra cotta roofing and clay sewer pipes could not be met. While the full output of terra cotta roofing tiles could not be achieved in the remodeled facilities (the factory in Jircany), the production of clay sewer pipes was restrained by their sales. The same applies also to masonry materials, construction modules, drainage pipes and stoneware construction materials.

These problems notwithstanding, the whole branch of our construction production has the potential of successfully accomplishing the tasks of its plan for the entire year.

9004

CSO: 2400/117

## EDITORIAL VIEWS IMPROPER UTILIZATION OF AGRICULTURAL EQUIPMENT

Prague RUDE PRAVO in Czech 10 Nov 83 p 1

[Text] Work in the fields is ending. The equipment introduced in the course of the year to various seasonal jobs will be subjected to thorough inspection, maintenance or repair. Modern agricultural equipment, which our agriculture has, rightly deserves continued care and attention. To be sure, it remains an assistance bonanza to workers in agriculture in their effort to cultivate and harvest as much as possible. It is also one of the tasks based on the conclusions of the 16th CPCZ Congress and the decisions of the Fourth Session of the CPCZ Central Committee on agriculture which emphasized making better use of agricultural equipment, extending its life and increasing its operating reliability.

This year has again confirmed that without well-maintained equipment it would have been impossible to harvest the grain, which ripened suddenly in entire regions. The situation was similar in autumnal work--potato, silage and grain corn and sugar beet harvest and particularly tillage and treatment of meadows and pastures. Well-maintained and efficient machines assigned to cooperative groups, in which the repairmen were involved in decision making, and routine repair were made in the fields, have yielded benefits. They succeeded in harvesting the cultivated crops, frequently under poor conditions caused by drought without substantial losses.

But there were not only good examples. Problems occurred where the equipment was not adequately maintained. The forthcoming season simply urges machinists, tractor operators and repairmen to get together and, with the agricultural enterprise management, evaluate this year's use of the equipment, its operational status, whether they were able to achieve fuel savings and how a given worker took care of routine maintenance of the equipment entrusted to him. From the experience gained they must reach appropriate conclusions especially in areas where there was little reason to be satisfied.

Our agriculture is using some older generation equipment but also some of the latest. And it is the modern equipment which often represents a value of tens or hundreds of thousands of crowns. If such expensive equipment, due to improper maintenance, storage, or insufficient maintenance, cannot be fully utilized for particular seasonal work in the fields, then the operating costs increase considerably as a result of harvest losses. Therefore, it is necessary

to look critically at certain shortcomings in the care and maintenance of equipment which still occur in some agricultural enterprises. These shortcomings can be avoided in time.

Agricultural enterprises are beginning to implement their own Set of Measures and the results unequivocally confirm that the way to improvement lies in more effective use of equipment. Of course, much of it must begin to be applied at once. Now that the autumnal work is ending, it is the best time to start on it [implementing the Set of Measures]. It is a principle of the best machinists that, immediately after harvest, the equipment is cleaned and maintained, machine defects are recorded and the repairs begin. It should go without saying that equipment worth hundreds of thousands should be properly stored. However, past experiences show that many agricultural enterprises had ignored many shortcomings in the equipment maintenance until the "high noon" and only when the equipment was to move out into the fields, were the machines being examined and spare parts sought. But there were plenty of similar shortcomings this year also. They arose mainly because the workers responsible for the equipment did not properly check the machine history and, in the winter months, did not follow the course of repairs. It was again shown that many farmers have not taken to heart a well-known proverb--one who takes care of the equipment in the winter has fewer problems in the early spring. It is too late then to make excuses that spare parts are not available, when they could have been ordered in time at the end of the [previous] harvest.

Many problems can be anticipated. It is necessary, however, that agricultural enterprises prepare their requirements for spare parts, from either STS [state tractor station] or Agrozet trade organizations, on time. In the coming winter period, it will be important that agricultural enterprises, in cooperation with STS and industrial enterprises, engage in a more extensive spare part [inventory] replacement. And we are speaking of substantial quantities. Farm equipment repair shops, some JDZ [Unified Agricultural Enterprises], state farms, and industrial enterprises replace about 3,000 types of older and new machinery spare parts. It would be wasteful not to take advantage of the engineering tools in the repair workshops or not to establish them where the conditions are favorable. Many repair shops offer engine-tuning services to reduce the fuel consumption of tractors, trucks and other machinery. Elsewhere again, on the basis of this year's good experiences they are expecting various improvements in equipment in order to improve the efficiency and limit harvest losses to a minimum.

Therefore, much attention is being given to these problems in leading agricultural enterprises. Not only the enterprise management but, above all, the communists, trade-unionists and youth are interested in this. In their workplaces they primarily draw attention to certain shortcomings and try to find solutions. Their suggestions should not be overlooked. It is just a short time before the enterprise will start discussing the next year's plans and no favorable experience or improvement proposed by workers should be neglected.

It is the people working with the equipment who often ask that equipment repairs be accomplished as soon as possible. Many of them became convinced that they had fewer problems when using such well maintained equipment in the fields.

There were fewer stoppages during the harvest, furthermore, regular maintenance of equipment enabled the tractor and combine operators to harvest the entire crop dependably and with a minimum of cost. Such experiences were gained at agricultural enterprises, where the khozraschet method of management is being implemented and every worker has an economic incentive and is materially responsible for his task.

In our agriculture, there will be ever more stress on quality of agricultural equipment. From year to year the problem of efficient utilization of equipment becomes more pressing. That is why to be a good manager means to discover omissions and shortcomings in time and have them systematically corrected. The coming winter period gives all agricultural machinists and other workers the opportunity to prepare the equipment well for the forthcoming tasks expected of them in the coming year of the Seventh 5-Year Plan.

2174

CSO: 2400/90

ENERGY VICE MINISTER DEFENDS COAL INDUSTRY REPUTATION

Warsaw ZYCIE WARSZAWY in Polish 3 Nov 83 pp 1, 2

[Interview with Eugeniusz Ciszek, vice minister, chairman of the Coal Committee of the European Economic Commission of the United Nations, by Marek Kownacki: "Polish Mining Is Not Bad"; date and place not specified]

[Text] [Question] Your election to the chairmanship of the Coal Committee was not only a recognition of you personally, but also a sign of respect for Polish mining. And yet it seems that recently our mining did not have the best press.

[Answer] On the contrary. During the meetings of the committee the issue of the quick recovery of Polish mining was raised repeatedly as the results which we have achieved during the last 2 years were discussed. There is talk of our return to fourth place in output and to third place in the world export of coal. This is not an accidental matter or a result of sympathy for Poland. The committee is staffed by professionals and they evaluate the matter according to strict technical and numerical criteria. Naturally, speaking well of our mining, at the same time they observe it carefully, evaluating our intentions as far as output and export are concerned.

[Question] In offering our coal for sale in the European markets, we had to lower our prices somewhat. Are we not blamed for this and accused, for example, of dumping?

[Answer] Every country has its own rules as far as export is concerned. This depends mainly on the geological and exploitation situation in the mines. In the commission nobody looks into the internal accounts of the partners; what is at issue mainly is the exchange of information: what is going on in the mining industry in a given country, what the intentions and prospects for the future are. Trading issues depend only on market mechanisms and on contracts between the interested parties. Thus, there can be no talk of blame.

[Question] How are our mining experts evaluated by European professionals?

[Answer] It would be better to say world professionals.... The commission has in its name the word "European," but countries from outside of Europe, including the United States and Australia, participate in the work of the commission.



This is the only agency of the United Nations where all countries interested in coal are represented.

To return to the evaluation: We are indisputably among the world leaders as far as technology and techniques are involved. This is the source of, among others, interest in what is going on in our mining, in the direction of our technological solutions. This is also the source of the participation of our research and development institutes and of our investment implementation firms in the construction of mines in various countries.

[Question] Maybe we should be more specific: What can Polish mining say and offer in mining technology?

[Answer] Our mining reaches very deep underground, and this counts already. The threat of crumping increases with depth, and this is something we are already able to predict quite effectively and thus to prevent catastrophies. We are also dealing relatively well with protecting objects on the surface from damage caused by mining. We have experience in the struggle against very dangerous eruptions of gasses and stones. Similarly we are managing quite well in demethanization of mines, which are threatened by gas explosions. There are also detailed works on the technology of exploitation of mines using the so-called hydraulic offset. These solutions interest others around. Recently, for example, Indian specialists were asking about filling methods.

[Question] In its work the commission also evaluates the safety of mining operations. How do we compare with others in this field?

[Answer] The safety of work in the mines constitutes one of the basic topics of work in the commission. As I mentioned, we have much to offer in this area, and we need not be ashamed of our results. The European statistics show that work is safest in British and Polish mines. Worse statistics are achieved in, respectively, French, West German and Belgian mines....

[Question] These are not accounts done with some method of ours?

[Answer] Of course not. The methodology of evaluating accidents is similar in all countries; it is also conducted by various UN agencies, so there can be no question of any "manipulation." In addition, the High Office of Mining exchanges information with similar foreign institutions and conducts detailed analyses of the safety of work irrespective of the area of mining. Statistics are based on this....

[Question] One can hear voices in Poland that are mining too much coal, that the rate of miners' work can be lowered since stockyards are full of coal.

[Answer] Such opinions result from the fact that over the years we became accustomed to the phenomenon that mining literally supplied coal as it was needed. For the first time the situation is different, and this seems strange. And yet, in the world and in Europe people reason and count completely differently. It will be easier to illustrate this with examples.

During the last year, West Germany mined 96,000,000 tons of coal, but, at the same time, the reserves of this fuel were estimated at 35,000,000 tons. Great



Britain mined almost 125,000,000 tons and has reserves of 57,000,000 tons. The United States mined 707,000,000 tons, and the joint reserves of producers and buyers hold 204,000,000 tons of coal. In turn, Finland, which has no coal mines, accumulated reserves which are sufficient for 20 months of the functioning of the economy.

This accumulation of reserves began sometime in 1973 after the oil crisis. And the Polish difficulties with the export of coal only helped to convince economic managers in other countries that coal has to be kept in reserve. Obviously, the changing situation in the world market also influences such behavior, but today no rationally managed economy of a large country can function without reserves. What we have gathered until now is incomparably less than what can be observed in other countries of Europe and of the world. We should have bigger reserves, and because of this there is, for example, the need to create big [word illegible] reserves of fuel.

[Question] The opponents of large output, and especially of coal exports, argue that the sale of raw materials is the lowest form of their exploitation, and that only weak countries decide to export their goods in their original form....

[Answer] This is a general, theoretical argument and it is only half true. If one were to accept such reasoning then how would we explain the U.S. decision to increase the mining of coal to a billion and a half tons by the year 2000 with simultaneous enormous export? Would Great Britain finance today a significant development of mining, even though it has large possibilities of exporting other goods? Would Canada also invest to increase its output significantly if this thesis were true? And, let us take Sweden with its growing export of iron ore.... We simply sell what we can do best. Obviously it would be good to process coal producing various things, but this costs money. Obviously, we should constantly be reminded of the need for a frugal coal economy, but this cannot be connected with the principles of export.

[Question] Specialists say more and more often that the world must return to coal. Is this discussed also by the commission?

[Answer] Obviously. The very fact that more and more countries participate in the work of the commission testifies to the increased interest in coal. The forecasts seem unambiguous: in the long run there is not enough oil and gas, but there is enough coal. Thus, for example, the Australian economy is adjusting itself to extensive mining and export of coal. Columbia and Botswana, countries which a short time ago did not count in mining, want to join the top 10 exporters. The turnover in China is increasing, and large interest in coal can also be observed in Latin America.

[Question] Are we going to lose or gain by this?

[Answer] Well, Australia and the Latin American countries are going to supply basically their own regions, so they are not in competition with us. The very interest in coal is an opportunity for us: this fuel will be one of the basic economic resources. Nevertheless, we have to take into account the fact that

large changes will take place in the mining and especially in the trade in coal. These will be mainly qualitative changes, which today are difficult even to predict with precision. Similarly, there must be changes at least in the approach to the problem of environmental protection in connection with the mining of coal.

Because we have participated in the work of the commission from the very beginning, that is from 1947, we will continue to have a detailed view of the situation, of trends which will develop in the mining world. I think that this will help our economy in adjusting to the tendencies, and maybe even to gain something from them....

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